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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 384

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26 January 1983

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No. 384

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BALTIC COMMISSION STILL SEEKS TO PREVENT PCB DISCHARGING

Helsinki HUFVUDSTADSBLADET in Swedish 9 Dec 82 p 9

[Text] The Baltic coastal states have not yet managed to create a watertight system to prevent the dumping of the poison PCB into nature through carelessness or criminal activity, something that the secretary general of the Baltic Commission, Professor Aarno Voipio, regrets.

Experts have long agreed on the dangers of the poisonous substances PCB and DDT. In the Baltic protection convention, entered into in 1974, the substances were classified as extremely dangerous.

DDT is today almost totally banned in all the countries that signed the convention, but attempts at limiting the use of PCB have not turned out as well. PCB is used "de facto" in all the seven Baltic countries, more in some and less in others. In Finland 100,000 condensers and 250 transformers containing PCB are still in use.

The convention contains limitations for the use of PCB, but the protection commission has allowed certain forms of usage considered necessary.

Carelessness, Crime

The problem is, according to Voipio, not that the dangers of environmental poisons are unknown in the Baltic countries. The problem is that new accidents continuously occur due to carelessness or crime, as for example, the scandal of the toxic barrels in Dragsfjord in Finland's southwest archipelago. It is estimated that around four tons of waste containing PCB entered the Baltic in connection with the Dragsfjord violation.

"The matter should be handled once and for all in such a way that something like this can no longer happen," thunders Voipio.

Openly

The Baltic Commission's aim is, according to Voipio, that those countries that signed the convention openly publicize information which could be disadvantageous to them, for example, the pollution from a coastal town.

Quite a few countries have started reporting events even inside the country, although this was not implied in the convention.

"I think that all the coastal states, during the next years, will notice that this openness is only advantageous to the picture it creates of them," says Voipio. "By giving careful and accurate information in environmental events, the state in question can increase its credibility in the area of environmental control."

"This is, at the same time, the only way a state can tell how well it has handled the environmental questions."

#### The Purpose

Voipio sees it as one of the important tasks for the coastal states to try to limit the environmental damage done from land. In its short-term program the Commission includes limitations on certain heavy metals, such as mercury, cadmium, zinc, and copper. The first recommendations about these are expected at the meeting of the Commission in 1984.

#### Political Intention

Voipio says that there probably is quite a bit of political desire to handle the environmental questions.

"An important factor has been that we have had no superpower political problems whatsoever in our activity during the last two years, when relaxation has had a headwind. The cooperation between the neutral, socialist, and EG-affiliated Baltic countries has developed during the whole time," Voipio emphasizes.

The most important tasks of the convention are, according to Voipio, to prevent against pollution from land and to guard against marine accidents that can lead to damage to the environment.

#### The Fight Against Oil

The convention also includes principles for the fight against oil spills and demands cooperation to identify and fight pollutants moved by the wind.

The Baltic Commission was ratified in 1980 by all the seven Baltic coastal states.

The Secretariat which the Commission presupposes is located in Helsinki and is today the only main office on the diplomatic level that any organization has located in Finland.

It is the secretariat's task to prepare questions to be dealt with by the Commission and to supervise that the decisions are followed. Next time the Commission itself will meet in January-February in Helsinki.

The head of the Coastal Waters Protection Agency of the German Democratic Republic, Hubertus Lindner, is at present the chairman of the Commission.

9843

CSO: 5000/2526

INCREASED NUMBER OF BALTIC SEALS STERILE FROM PCB DAMAGE

Stockholm DAGENS NYHETER in Swedish 15 Dec 82 p 19

[Text] More and more Baltic female seals are becoming sterile. The cause is environmental poisons, probably mostly PCB. A few years ago, 40-50 percent of the female seals had damaged uteri. Now more than 60 percent are damaged.

The situation is also critical for many other species threatened by environmental poisons, even if the situation is somewhat better after the ban on PCB, DDT, and mercury.

This is stated in the newspaper ENVIRONMENTAL NEWS. Some animal species have been badly hurt by the environmental poisons, so badly that they are threatened with extinction.

By the end of the 17th century, there were at least 1,000 breeding Pilgrim hawk pairs in the country. An extensive hunt for predatory birds was begun then, and by 1945 the number was down to 350 pairs.

Hunting of the Pilgrim hawk is now banned but, in spite of that, its numbers have continued to fall. Last year there were no more than eight known pairs left in the country.

Much indicates that environmental poisons caused the decline in numbers.

At the beginning of the 70's only an occasional pair of the great horned owl remained in the country. Thanks to rescue actions with great horned owls born in captivity, the strain has increased, and in 1978 there were 20 known pairs and a large number of single young birds in southwest Sweden.

Mercury contamination is a plausible cause for the difficulties of the great horned owl during the 50's and the 60's, but although the mercury content now is rather low, the great horned owls do not manage to reproduce sufficiently.

The Swedish sea-eagles are among those most affected by the environmental poisons. These days there are probably fewer than a hundred pairs left in the country.

9843

CSO: 5000/2526

ROADSIDE LEAD LEVELS IN WELLINGTON AMONG WORLD'S WORST

Wellington THE EVENING POST in English 3 Dec 82 p 2

[Text]

Lead levels in the dust from New Zealand streets rank with the worst in the world, says the Labour MP for Nelson, Mr Philip Woollaston.

Mr Woollaston, who recently introduced a bill into Parliament seeking to control lead pollution, said he had recently received results of research conducted in Wellington by Victoria University students.

Analysis showed that despite the windy climate, Wellington street dust contained more lead than that in Christchurch.

### Higher

Mr Woollaston said the levels were also higher than London, Birmingham, Manchester, Glasgow, and the average United States city.

"The only figures I have seen which are worse than

Wellington's are those for Hong Kong."

Mr Woollaston said it had been known for some time that roadside dust from the centre of Christchurch contained an average over five times the world Health Organisation's safety limit of 500 parts per million.

### Comparable

In the comparable area of Wellington, the average was more than seven times that limit and, in both cities, samples containing over half a percent of pure lead were common, he said.

The MP called on the Government to immediately institute a sampling and testing programme to determine lead levels in soil and dust throughout the country. The programme should be correlated with a parallel programme to test the lead levels in the blood of schoolchildren, he said.

NITRATE CONTAMINATION OF DRINKING WATER AROUSES CONCERN

Auckland THE NEW ZEALAND HERALD in English 24 Nov 82 p 1

[Text]

Press Assn Wellington

The Environmental Council says nitrate contamination of drinking water is reaching disturbing levels in some areas of intensive farming.

In Pukekohe, it said, drinking water was so contaminated that alternative sources would have to be considered.

The Waikato lowlands were recording high levels of nitrate contamination, as were Nelson's Waimea Plain, the Taranaki lowlands and mid-Canterbury.

World Health Organisation safety limits for nitrogen-nitrates in potable water was to be updated in 1985 in the light of greater understanding of health risks, the council said in a statement.

High levels of contamination were said to threaten the health of babies and put adults at risk of stomach cancer.

The council said: "New Zealand has now reached the stage where a distinction must be made between water available for general purposes (such as irrigation and industrial cooling) and that for drinking."

A distinction was common in advanced industrial countries but New Zealand has been reluctant to accept that ground water may become unfit to drink.

Among ways in which nitrate levels could be reduced, the council suggested, were effluent treatment and the planting of deep-rooted trees to use up nitrates which would otherwise be leached into ground water.

CSO: 5000/9085



ENVIRONMENTAL STUDIES ON CHEMICAL WASTES CONDUCTED

Irrigation With Wastewater

Beijing HUANJING KEXUE [JOURNAL OF ENVIRONMENTAL SCIENCE] in Chinese Vol 3 No 5, 30 Oct 82 pp 18-33

[Article by CAI Shiyue [5591 1102 1878] et al of China Research Academy of Environmental Science]

[SUMMARY] In 1971-72, a pot culture experiment was carried out to study the effects of irrigation water containing 8 organic compounds of phenol, acetone, butyl acetate, benzene, toluene, etc. simulating the wastewater of Xiangyang Petrochemical Plant, in various densities, on spring wheat, winter wheat, cotton, corn, and peanut. Effects on germination, seedling growth, and yield are observed and reported; a SP-100 gas chromatograph made in China is used to analyze the residues in the soil and the harvested seeds. Statistical computations reveal that the level of phenol residue of the soil is in direct proportion to that of seeds of corn, wheat, peanut, and cotton; the same is true with toluene and xylene residues. Residues of ethyl benzene or isopropyl benzene in the soil have no linear relationship with their residues in peanut, however. In the conclusion, the paper claims that after biochemical treatment, the effluent of that plant is found to have a yield-increasing effect on crops. The maximum permissible densities of the various organic compounds in the irrigation water for the various crops are discussed.

Municipal Sewage Treatment

Beijing HUANJING KEXUE [JOURNAL OF ENVIRONMENTAL SCIENCE] in Chinese Vol 3 No 5, 30 Oct 82 pp 27-31

[Article by SHEN Yongming [3088 3057 2494] et al of China Southwest Designing Academy of Urban Engineering]

[SUMMARY] With a two-phase organic fluidized bed for aerobic treatment of sewage, the quantity of oxygen obtained from the organic reaction is limited by the size of reflux and its dissolved oxygen content. It is frequently necessary to repeat the process many times at a high cost of energy. For the purpose of preserving the highly efficient characteristic of the fluidized bed technique and reducing the power consumption, a scheme is devised to rely upon the metabolic activity of facultative microbes to realize the sewage purification objective. Under the condition of low oxygen supply, the  $BOD_5$  volume load of the facultative fluidized bed may reach 3.0-5.0 kg  $BOD_5/m^3 \cdot day$ . The power consumption is lower, when the quality of water treated is similar to that of aerobic bed; the power consumption is considerably lower, if the water is of a slightly poorer quality. The facultative fluidized bed scheme is described.

#### Determination of Chlordimeform Residues

Beijing HUANJING KEXUE [JOURNAL OF ENVIRONMENTAL SCIENCE] in Chinese Vol 3 No 5,  
30 Oct 82 pp 39-41

[Article by ZHUANG Wuj [8369 3541 1803] et al of Comprehensive Analysis Office,  
China Academy of Agricultural Sciences]

[SUMMARY] Chlordimeform has been a new pesticide of emphasized development in China. In view of recent reports of its carcinogenic effects on white mice, experiments have been carried out, since 1976, to clarify the condition of its residues in rice, apples, and cotton-seed oil. In apples, pears, etc. its residues are found to be below 1ppm, if the last application is more than 30 days before the harvest; otherwise above 1ppm, reaching as high as 2.57ppm. The difference is found to be insignificant, only 0.05-0.33ppm, with or without the rind, demonstrating its strong permeability. In rice, the residues diminish very slowly, staying at the level of 1.65-2.26ppm in 1978, although the samples were harvested in 1976. Residues in cotton-seed oil are found to be low, varying between 0.00125 and 0.075ppm. Findings of the four-year study are reported in some detail.

#### Measurements of Acidity in Precipitation

Beijing HUANJING KEXUE [JOURNAL OF ENVIRONMENTAL SCIENCE] in Chinese Vol 3 No 5,  
30 Oct 82 pp 55-57

[Article by MU Tianlin [5459 1131 7792] et al of Department of Meteorology, Nanjing University]

[SUMMARY] Although some work has been done on the acidity of rainfall in China, there are yet no comparative data of rural and urban areas. In Sep to Dec 80, precipitation specimens were taken from Huangshan of Anhui Province and their pH data used as the background value to compare with the precipitation data in the city limit of Nanjing. Huangshan specimens are found to be close to neutral, with very little variation. The pH of precipitation specimens of Nanjing in 1980 is found to average 5.60, varying between 4.10 and 7.93. In Nanjing, the frequency of appearance of acid rains is 38.6 percent (1980) mostly in the months of Jan, Jul, Aug, and Sep. The cause and distribution of acid rains in Nanjing are considered to be subjects worthy of future investigation.

6168

CSO: 5000/4115

# FARMERS USING TOXIC PESTICIDES

Bangkok BANGKOK POST in English 21 Oct 82 p 2

[Article by Kamon Pensrinukun]

[Text]

**A LARGE number of cotton growers in Thailand are still using toxaphene — a chemical pesticide that the United States decided to ban for most uses last Monday.**

Official statistics show that last year Thailand imported 319,729 kilograms of toxaphene, reportedly from the United States.

A toxicologist, who did not wish to be named, said that if Thailand's cotton yield rises this year the amount of toxaphene used in this country would increase accordingly.

He said that toxaphene is mixed with DDT at a ratio of 2-1, diluted, and sprayed on cotton flowers to kill the "American Bollworm."

"Toxaphene causes one of the biggest problems in environmental pollution," he said.

On Monday the US Environmental Protection Agency banned most uses of toxaphene, a popular chemical pesticide that has caused cancer in laboratory animals and is toxic to fish, birds and other wildlife.

The agency announced at a news conference that it will forbid the application of toxaphene on most crops, but will allow its limited use.

The agency said toxaphene will be permitted

in "demonstrated emergency situations" to control army worms, cutworms and grasshoppers on cotton, corn and small grains.

It said research indicates that individuals who eat toxaphene-contaminated fish can register "significant body levels" of the substance and "this necessarily implies an environmental contamination."

The toxicologist interviewed by the *Bangkok Post* yesterday expressed fear that Thailand, like other developing countries, may become a "dumping ground" for the pesticide. He said this had occurred in the past with other types of pesticides banned abroad.

"We are like guinea pigs," he explained. "Importers only care for the commission. The more they sell the more money they get."

Toxaphene, a complex mixture of polychlorinated compounds, he said, causes both acute toxicity and chronic toxicity.

Small dosages measured in milligrammes have proven lethal to

laboratory rats, but the biggest problem lies in the pesticide's chronic toxicity.

He said that toxaphene may cause cancerous tumours, adding that he advised farmers to use other pesticides which can be considered safe.

He said pesticides in the Pyrethroids, Organophosphate and Carbamate groups can be used as alternatives to toxaphene.

"We can check which pesticide is safe and unsafe by the announcement of a ban in foreign countries," he said. "But despite knowing such facts we have continued to allow uncontrolled use of some highly toxic chemicals."

"We have a law (the Poisonous Articles Act) to effect a ban, but not everyone higher up (senior government officials) agrees to carry it out. The situation is difficult. It seems we like to repeat the mistakes of other countries."

He declined to name senior officials who were reluctant to introduce a ban on dangerous pesticides.

According to the toxicologist, toxaphene can be absorbed into the body system through skin contact and sprayers are highly vulnerable to the exposure.

Its residue remains on plants for as long as 40-50 days and when it reaches streams or other bodies of water it continues to pollute the "food chain," including marine life, farm and domestic animals and eventually, people who consume them.

Toxaphene is persistent, easily transported in the environment, and capable of accumulating at high levels in biological organisms, he added.

CSO: 5000/4306

WATER SHORTAGE, POLLUTION DESCRIBED

Warsaw ZYCIE GOSPODARCZE in Polish No 47, 12 Dec 82 pp 1, 4

/Article by Dr Engineer Aleksander Tuszko, professor emeritus of the University of Warsaw: "The Water Predicament"; passages in slantlines printed in boldface/

/Text/ It is a self-apparent truth that due to the limited pool of our water resources and the lack of practical opportunity to replace them, these resources must be diligently developed, protected and used frugally. Unfortunately, for many years in the past the warnings of scientists and specialists were received with mistrust and did not evoke a response. Thus, it is no wonder that incompetent and inappropriate management and use of available water resources led to their appreciable decrease and a disastrous decline in their quality.

Areas which are permanently or temporarily short of water proliferate increasingly. Limitations and rationing of water are increasingly frequent, not only for industry but for residential consumption in cities and settlements as well, even in health-resort areas! Statements are increasingly frequent and warnings are increasingly alarming about the progressive pollution of rivers and lakes where liquids flow or are contained which cannot be put to any economic use. Biological disasters caused by environmental poisoning are assuming unexpected proportions. We are having to deal with a near ecological catastrophe in some coastal sections of the Bay of Gdansk which receives polluted waters from the Polish inland.

Why is this so? Could not this have been foreseen and prevented in due time? After all, as early as in the 1950s, the "Long-Range Plan for the Development of Water Management" in Poland was elaborated. What has happened to the plan? Let us try to answer these questions.

The State of Menace

Among the states of Europe, we rank among the last in gross and per capita water resources. Shortcomings in water management cause a large volume of

water to flow into the sea in times of high water, sometimes in the form of flood runoff. These waters are not put to any use in the economy. Worse yet, they cause considerable economic damages estimated to go into dozens of billions zlotys annually as well as social damages, which are very burdensome and difficult to quantify. The reason for this is the lack of an adequate number of storage reservoirs and an adequate quantity and quality of levees. Existing storage reservoirs store a mere 5 percent of the average annual outflow. This is incredibly little. In Bulgaria, the capacity of storage reservoirs makes it possible to store 15 percent, in Czechoslovakia--12 percent, in the USSR--14 percent of the outflow.

Available water resources in our country are estimated to be 22 billion cubic meters in an average year. This quota is decreasing due to increasing pollution. An increasing volume of water is unfit for population and economic activity, whereas water treatment entails outlays.

Water is classified in Poland into three categories according to purity. The purest waters belong to class I, those with medium quality to class II, those still suitable for industrial consumption and agricultural irrigation--to class III. The remainder, more polluted waters, are nonclassified and, basically, are not usable for any purpose.

/The progressing degradation of waters over the last several years is especially worrisome/. In 1967, 36.6 percent of the length of our rivers qualified as class I waters, in 1979--only 9.8 percent. Third class waters accounted for 14 percent in 1967; by 1979, this share grew to 25.9 percent! The share of nonclassified waters increased over that period from 28 to 33 percent!

The current purity, or rather impurity, status of rivers would come out worse yet, should we take account of bacteriological pollution found in recent years as well as physico-chemical pollution. A mere one percent of the length of rivers would qualify as class I, 19 percent as class II, 21 percent as class III and 49 percent of the length of rivers would be nonclassified. Ner, Welna, Bug, Utrata, Bzura and many Silesian rivers, nonclassified on their entire length, are especially polluted. With the exception of the source area, the Vistula carries waters which do not even qualify for class II, and only 30 percent of the length meet the requirements of class III. The remainder is nonclassified waters. The pollution status of the Oder is also dramatic.

Water pollution by metals is increasingly worrisome. /Mercury content in the Vistula at Krakow exceeded acceptable standards 200-fold in mid-1980/. Excessive quantities of chromium, copper, lead, iron and manganese were also discovered. It is estimated that /more than one half of flowing waters and of water used by water supply systems does not meet the standards/.

This high degree of pollution of our rivers is due to the discharge of untreated or inadequately treated municipal and industrial sewage. Increasing volumes of polluted surface runoffs, containing phosphorus, nitrogen and other compounds also flow into rivers and lakes. This is caused by the intensification

of agriculture and increasingly generous use of fertilizers and insecticides. This triggers an advancing process of water eutrophication (enrichment). Due to the lack of oxygen, processes of water self-cleansing are disrupted. These processes are very important for replenishing water and maintaining its quality.

About 12 billion cubic meters of sewage, out of which 4.7 billion requiring treatment were discharged into surface inland waters in 1981. Since 1975, the volume of sewage increased by about 14 percent. Only 55 percent of this volume was treated, the bulk of it by mechanical means only, with low efficiency. Only 15.7 percent of all sewage was treated by higher efficiency biological methods. /About 45 percent of all sewage was discharged into rivers totally untreated/.

Two few sewage treatment plants are in operation. Out of the 3,800 industrial enterprises consuming more than 40,000 cubic meters of water annually, only 37.5 percent have sewage treatment plants, out of which only 29 percent have adequate capacity. Also, only 364 cities have sewage treatment facilities, out of which as many as 172 use only mechanical treatment. About 80 percent of the remaining 192 municipal biological facilities are handling water volume overloads. Thirteen voivodship seats, headed by Warsaw, do not have sewage treatment plants at all. On top of that, professionalism of employees leaves a lot to be desired, whereas supervision and control are sporadic, inefficient and inadequate.

Nothing gives greater testimony to the crime committed against nature and man than polluted waters. They have been transformed into malodorous liquids with slicks of oil floating on their surface. Stinking foam piles above the water "table", feces floats, waters saturated with the most dangerous chemical contaminants flow along. Rivers are being turned into sewage collectors, lakes into quagmires where all life has been exterminated.

More and more frequently, we encounter waters in our country which do not support either the most abominable species of fish or the most primitive organic life. These waters spread around devastation and the threat of death. Burned, yellowed grass and dry trees are seen on the banks. Places where not so long ago the exuberance of life reigned are now deadly quiet!

Old cities and urban-industrial centers have grown and new ones have appeared. Highly industrialized regions and regions exceptionally valuable as nature reservations, for recreation or water sources protection have become apparent on the map. In the latter, the preservation on natural environmental traits and of developmental approaches associated with them is needed for the good of society. The awareness of this must command respect for spatial arrangement in decisionmaking which should reconcile the intensification of the economy with environmental protection. This arrangement has already been significantly disrupted.

#### Water and Planning

Polish science was quick to grasp the status of our water resources and the possibility of water shortages accompanying population and economic growth.

From 1952 through 1955, the above-mentioned "Long-Range Plan for Water Management" in Poland was elaborated by the Polish Academy of Sciences. This plan forecasted the growth of consumption until 1975 and also warned of possible difficulties in meeting these needs from natural water circulation. It was established that it was necessary to restructure this circulation adequately by building storage reservoirs and transfer channels from areas with excessive water supply to water-short regions. Technical concepts of water management measures to be undertaken by 1975 were also developed. Meeting the demand for water in the quantities envisaged at the time for population and all sectors of the economy was contingent on the implementation of these measures. Even then, the emphasis was laid on the need to protect clean waters and to treat sewage.

Unfortunately, the then envisaged intentions have not been implemented. What have been the reasons for the low efficiency of the long-range plan developed in the 1950s and for the failure to carry out the investment recommendations set forth in the plan?

Underestimation of the significance of the territorial development of the country and the need to plan it was the first such reason. Also, the shortcomings of the territorial planning apparatus in translating the stipulations of long-range plans into five-year periods and the lack of due appreciation for the general stipulation of the long-range spatial development plan have become apparent.

/The lopsided development of the structure of the socioeconomic system/ was a great and undoubtedly negative influence on spatial development, including water management and environmental protection. It was based on making the development of industrial production the absolute priority coupled with neglecting agriculture, technical infrastructure and environmental protection. This neglect, especially of agriculture and environmental protection, almost bordered on discrimination, despite the declarations and make-believe activities that accompanied them. In the long-range plans of water management prepared by the Polish Academy of Sciences in the 1950s, the water requirements of agriculture at the 1975 level were calculated on the assumption that Poland would have achieved self-sufficiency in agricultural production and animal husbandry by that time. This requires water as well as soil, fertilizers and heat. We should be aware of the fact that this year, under exceptional temperature conditions, we could have turned in a bumper crop had we been able to provide the needed volume of water for agriculture. Meanwhile, never during the postwar years has agriculture attained a level of production which could meet even the minimal requirements of the economy.

An important issue of industrial concentration acceptable from the point of view of environmental protection and water management was not taken into account. Consequently, contrary to the opinion of the learned community, large industrial enterprises were located in places unjustified by the interests of water management and environmental protection as well as the very desirable spatial arrangement.



Even large investment projects in water management were undertaken under the pressure of the needs of the moment. Their implementation did not establish the necessary continuity in river management, in the construction of reservoirs, transfer channels, sewage treatment plants etc. Continuity and the spatial logic which could increase the availability of water resources and create reserves for the years to come were lacking. The lack of investment continuity in water management impacted very unfavorably on the implementation of basic tasks as well as the efficiency of investment ventures. For example, after /the hydropower station at/ Wloclawek was constructed, large construction potential was wasted and dispersed due to the lack of decision as to the continuation of development. This was also the case with the construction of Solina on San, Tresna on Sola and so on and so forth.

### Mistakes in Management

The state of the environment and water management is to a large extent the consequence of inappropriate organization and management at the central and local levels. The structure of water management has been reorganized several times in the postwar period in order to ultimately arrive at /the present state, which cannot be described as anything else but chaotic/.

In 1944, the competence of integrated water management was split between two ministries, with two more added later on. In 1960, the Central Water Management Authority was set up taking charge also of the issues of water protection. Within the authority, the Bureau of Air Protection was created later. This was a triumph of common sense, because considerable integration of water management and environmental protection was achieved at the time. Unfortunately, the Central Water Management Authority was unexpectedly liquidated in 1972, despite the unanimous opinion of the learned community and water management experts. Its basic functions were taken over by three ministries: the Ministry of Agriculture, the Ministry of Administration, Communal Economy and Environmental Protection and the Ministry of Transportation. As a consequence of these unfortunate decisions, a complicated pattern of managing the water economy and attendant branches at the central level emerged. It consisted of six ministries (besides the already mentioned ones, also the Ministry of Mining and Power-Hydropower and the Lower Vistula development, the Ministry of Construction and Construction Materials--hyrotechnical projects' execution and the Central Geological Authority--subsoil waters). In the areal aspect, the authority over water resources was spread at first among 17 and then since 1975 among 49 provinces.

It can be asserted with the utmost confidence that the situation in water management in the last decade evolved not only under the influence of decreasing investment, but also under the influence of organizational dispersion and the precipitously declining efficiency of an administration where the leadership of /a competent, professional and diligent manager/ was lacking. As a result, progressively fewer water management installations were completed in successive five-year periods. The volume of reservoirs, capacity of sewer treatment plants, irrigated areas, areas with flood protection, capacity of hydropower stations etc. grew too slowly. The authority of the water law and the efficiency of its influence declined. The condition and efficiency of fixed assets in water management was very unsatisfactory. Depreciation of these fixed assets is progressing fast due to inadequate upkeep and replacement.

The cadre of highly competent experts and scientists assembled by the Central Water Management Authority was dispersed. As a result, out of 200 employees of the authority several persons stayed on in the Ministry of Agriculture and the Food Economy. These people, despite their sincere desire, cannot handle the task.

By a stroke of luck, in 1978 the Bureau of the Government Plenipotentiary In Charge of the Lower Vistula Development was set up. In the years 1978-1981, the bureau enjoyed the status of a central authority coordinating the activity of governors and ministries due to the dispersion of their water management functions, on the one hand, and the desire to implement the "Vistula" project in a centralized fashion on the other hand. The bureau is currently reducing its activity in anticipation of a correct organization in water management. Now it employs only 33 persons.

We should hurry up, because our bitter experience suggests that restoring the cadre of specialists in the center as well as locally will be the longest process in putting the issues of water management and environmental protection in order. Valuable human potential was wasted in 1972; we cannot let such waste occur now.

We have already shed some light on the merits of activities over a 10-year period of the Ministry of Agriculture (currently, the Ministry of Agriculture and the Food Economy) and the Ministry of Communal Economy and Environmental Protection (currently the Ministry of Administration, Communal Economy and Environmental Protection)--very controversial ministries from the point of view of water management and environmental protection. It should be stressed here that these ministries, especially the Ministry of Agriculture, have failed to build up and position the needed adequate cadre of experts on water management and engineering, in the center as well as in the field.

A firm stand on the need to correct radically the harmful organizational situation in water management which has existed since 1972, was taken as early as 1973 by the Second Congress of Polish Science and in the following years by the Sixth and Seventh Congresses of Polish Engineers. It was stressed with the utmost emphasis by the Eighth Congress of Polish Engineers, which took place in Lodz between 8 and 10 October of this year.

In the face of the situation in water management and environmental protection, of mistakes and shortcomings in the work of administration, the leading general recommendation of the congress appears clear and undoubtedly correct:

"It is necessary to set up without delay an autonomous leading organ of state administration in charge of environmental protection and water management, which will define the state policy with regard to environmental protection and water management, supervise its implementation, monitor and enforce compliance with pertinent laws and regulations as well as plan and coordinate economic activity in this field within the framework of supraministerial jurisdiction".

/It is high time not only to renounce the existing harmful organization of water management and environmental protection, but to counter resolutely the emerging concepts of in-house solutions in the way of setting up a bureau or office within the jurisdiction of or assigned to one or another already existing ministry/. These ministries have absolutely failed to make the grade in this field during their activity over more than 10 years. After all, let us draw conclusions from our own mistakes. They cost the society and the economy dearly.

Let us not create another sham by assuming that a peripheral position of water management and environmental protection issues in a ministry where the basic task is its own economic activity will produce the desired effect. Moreover, these ministries often evaluate the issues of water management and environmental protection incorrectly. /It is difficult to demand that the ones generating municipal sewage be at the same time the responsible guardians of its purity. This brings to one's mind the story of a hare who was entrusted with taking care of a head of cabbage--and this, from all accounts, did not work!//

9761

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## ENVIRONMENTAL PROTECTION OUTLAYS, INSPECTION ASSESSED

## Environmental Degradation Versus Investments

Warsaw ZYCIE WARSZAWY in Polish 24 Nov 82 p 3

/Article by Iwona Jacyna: "A Deliberate Choice" under the rubric "What We Cannot Afford (1)"

/Text/ Can we afford environmental protection during our current severe economic crisis? For such protection is costly, especially in view of the tremendous past neglect. Were passers-by on a street to be polled, the answers would be negative. Most if not all people asked at random would have answered that we cannot afford such protection for the time being. But this would merely prove the disturbingly low level of knowledge of the matter. That is why the amount of funds allocated for this purpose should not be based on "consultation" of this kind.

No one, of course, is carrying out such a street poll. But the opinion of the great industrial plants, which usually are at the same time great poisoners of the environment, would not differ much from the opinion of a casual passer-by. The reason would be the same--ignorance about the menace and the extent of the losses it causes.

The question should be worded thus: can we afford the multi-billion losses due to environmental pollution and the continuing degradation of the environment? These losses reach at least 300 billion zlotys annually, and some experts claim that they are twice as large. Such huge figures do not appeal to the imagination, but let us recall the dead fish on the seashore due to the pollution of nearly every river in the country; let us recall the dying forests of Silesia and the Sudetens due to air pollution; the crumbling walls of Cracow; the growing areas of soil poisoned or covered with wastes. And what is the cost to us of the food that has to be destroyed owing to chemical and biological contamination? Let us recall the data of the State Sanitary Inspectorate published by the GUS /Main Office of Statistics/, which show that inspections of milk quality in 1978 resulted in disqualifying 20.3 percent of the samples tested and in 1979, 36.8 percent. The corresponding figures for butter were 19.6 and 19.4 percent, respectively; for vegetable fats, 17.7 and 20.9 percent; and for meat, 37.4 and 31.4 percent.

These figures terrify. For there is no doubt that part of the contaminated produce becomes consumed. How does this affect health? These losses could not be

calculated by anyone. It is a very high price that the public is paying for the still universal disregard of problems of environmental protection, for the conviction that there is still time.

The founders of industry in the past decade represented the view that we should first develop industry and become rich and only afterward protect the environment. /We did not become rich, but we did pollute nature./ /printed in boldface/ Another 10 years and there will be nothing left to protect in many regions. After all, ecological disasters are even now the fate of this country. All this should be borne in mind when determining how much to allot for stopping the degradation of nature and hence also of the conditions of our life.

In the last couple of months various public and occupational and professional groups have been discussing the variants of the concept of the national economic plan for the period until 1985 and the preliminary assumptions for the 1986-1990 period. The draft plan proposes placing chief emphasis on two most important fields: the housing complex and the food complex. The term 'complex' is used because it is difficult to build housing without building cities, without operating the industry serving the needs of construction, and the same applies to the production of food. But neither good and healthy housing nor good and healthy food is possible without environmental protection. Hence the draft plan was discussed by the State Council for Environmental Protection, which transmitted its opinion on the matter to the Planning Commission under the Council of Ministers.

The draft plan includes measures for environmental protection among main social goals. For the first time perhaps a national economic plan attaches such great importance to these problems. Unfortunately, /the envisaged/ outlays are incommensurate with that importance/. /printed in boldface/ The draft plan provides for allocating for this purpose 1.86 percent of the overall outlays on the national economy, whereas the division of income into consumption and investment is presented in two variants for discussion. The differences between these variants are considerable; the share of net investments in income reaches from 13.3 to 19.4 percent. But both variants specify the same 1.86 percent of investment outlays so far as environmental protection is concerned.

The State Council for Environmental Protection questions such a principle for the distribution of the extremely limited, indeed, funds available. The Council's opinion on the draft plan includes the following statement:

"...variants of the division of national income are not, however, accompanied by any variants of the share of outlays on the environmental protection complex, inasmuch as it has been determined that that share is to amount to 1.86 percent of the total outlays, without leaving any other proposals for choice and discussion. Thus, in this respect a revision of the plan is needed. In presenting different variants of outlays on the environmental protection complex, attempts should be made at the same time to present all the possible consequences of each variant, with allowance for the effect of the resulting environmental protection activities on the health and nutrition of the nation (crop declines, food contamination, etc.). The public should be aware of the consequences of the selection of a variant giving priority to, e.g. consumption at the expense of outlays on environmental protection."

The public should be aware that acceptance of the outlays on environmental protection in the amount proposed in the draft plan would mean that pollution could not be curtailed or halted until the year 1990. The draft plan examines three sub-variants of investment policy as regards environmental protection: "high preference" for protection of the waters, "moderate preference," or a more uniform distribution of the pertinent outlays among the various directions.

Dr. Marek Roman, a member of the State Council for Environmental Protection and Dean of the Department of Sanitary and Water Engineering at the Warsaw Polytechnic, asks: "What preference at all comes into question here?"

"Even if all that money were to be allocated for the protection of the waters or of water management, this means that it still would not be the preferred field. These funds would perhaps suffice for building two or three large sewage treatment plants. It is possible to speak only of allocating the greater part of these funds for the protection of the waters. It seems optimal--in accordance with the suggestion made by our Council--to allocate these funds wherever the chances for their optimal utilization exist, wherever they will produce the greatest and most rapid effect. The Council postulates increasing investment outlays by at least enough to suffice to complete by 1985 the already initiated projects for environmental protection."

Professor Roman further declared: "In principle, though, the draft plan is of a questionable form in this respect since it does not provide for alternative variants or specify the consequences of the selection of each to the conditions of social life. The public may choose a variant unfavorable to environmental protection, but let it choose consciously. Many societies in the developed countries refuse to accept the pollution and contamination of environment, whereas in our country not even a basis for the discussion of this topic has been provided, since no alternative variants are being offered. And it should be borne in mind in such a discussion that unless funds are provided for environmental protection, we shall cease to swim in the Bay of Gdansk and the local resorts there, and perhaps also on other parts of the Coast, will have to be gradually shut down."

I asked the professor whether such a discussion is possible.

He answered: "It is necessary, provided that all the consequences of shifting these modest funds from one field to another, undertaking some measures and abandoning others, are objectively presented. It should not be pretended that environmental protection will be attended to by individual self-governing and self-financing enterprises. There is, of course, a need for mechanisms that would compel or encourage enterprises to take such actions--and such mechanisms are being activated. But the sum total of little plans will not substitute for a general and comprehensive national plan. Experts, who are aware of the menace to the environment, should make their voices heard loud and clear. The consequences of the continuing degradation of the environment may be catastrophic, and they may arrive more rapidly than is being thought at that. Then the public will ask where we experts have been. We do not make the decisions but we should make our voice heard also."

Another important voice on this topic is the opinion of the Polish Academy of Sciences. It states that, among other things: "The formulated general social priorities place just emphasis on the protection of natural environment. But this has not been reflected in investment policy. Yet putting a halt to the menacing degradation of the environment cannot be postponed. Even the difficulties that will be faced in the next few years cannot excuse the curtailment of investments in environmental protection."

The situation is all the more menacing considering that the number of factors harmful to the natural environment will increase.

We shall return to this topic in the second of this series of two articles.

#### Insufficient Environmental Protection Outlays

Warsaw ZYCIE WARSZAWY in Polish 25 Nov 82 p 3

/Article by Iwona Jacyna: "Two Percent is Too Little" under the rubric "What We Cannot Afford (2)"

[Text] To repeat, the crisis situation results in restrictions: there is very little money for everything. The draft of the socio-economic plan has presented various variants of the distribution of funds for public discussion. But so far as the funds for environmental protection are concerned, it has, despite assurances that the problem is important, provided no possibilities for a choice and instead offered a fixed sum of 1.86 percent of investment outlays. Such modest funds will not halt the continuing degradation of the environment, particularly in view of the vast neglect in the past. This has been commented upon by the Polish Academy of Sciences and the State Council for Environmental Protection, among others, and scientists, experts and practitioners also made their voices heard.

The shortage of funds for environmental protection and the continuing harmful separation of economic problems from measures to protect the environment may result in a dangerous spread of ecological disasters across increasingly larger regions of this country.

In 1975 were adopted "Assumptions of the Program for Environmental Protection Until 1990." That program, imposed by the Planning Commission, was hardly considered adequate by experts aware of the huge extent of the menace, and it has been repeatedly criticized. However, even this insufficient program, which did not assure making up for the backlog and repairing the damage but merely provided for halting further degradation of the environment, had not been fulfilled. During the years 1976-1980 a bare 40 percent of the planned outlays was implemented.

The funds for environmental protection diminished with each year. What were they in absolute figures? According to the GUS, 8.4 billion zlotys was spent in 1977; 7.6 billion in 1978; 6.6 billion in 1979; 5.4 billion in 1980; and 4.7 billion in 1981, that is, on the average 6.1 billion zlotys annually (in 1977-1978 prices).

For the 1981-1990 decade the abovementioned "Assumptions" provided for allocating about 33 billion zlotys annually for environmental protection (in 1977-1978 prices).

Let us compare these figures with the outlays envisaged in the current draft plan until 1985 and until 1990, which amount to less than 2 percent of the overall investment outlays planned. The draft plan states that these outlays should increase during 1985-1985 by 14 percent compared with the outlays made during the years 1976-1980, and during 1986-1990 by 37 percent. This means that during the first period about 7 billion zlotys is to be spent annually, and during the second about 8.4 billion (in 1977-1978 prices).

According to Prof Dr Stefan Kozlowski, a geologist and a member of the State Council for Environmental Protection, this means that natural environment will continue to deteriorate until 1990 and hence also dangers to health will continue to increase. The effects of excessive spoliation of nature are known. Under the present conditions it is to be assumed that saving the natural environment will require allocating at least 25 billion zlotys--in comparable prices--annually.

The opinion of the State Council for Environmental Protection that had been cited in the first of this series of two articles points out that there is not only a shortage of funds for protecting the environment in its current state but also the possibility that the rise of new factors will still further adversely affect the environment. One such factor is the growth of cities and urban centers as they become more densified. This means the build-up of all vacant lots in cities, the curtailment of areas set aside for greenery and recreation and the spread of housing build-up toward the neighborhood of often extremely noxious industrial facilities and heavily laden and noisy traffic routes. That is, in practice, this means a deterioration in the living conditions in cities, which already are inhabited by more than one-half of the total population.

Another menacing factor in further degradation of the environment will be the increase in brown coal extraction from 38 million tons in 1982 to 59 million in 1985 and 75 million in 1990 as well as the possibilities for extracting coal from local strip-mines. Open-strip mines result in the destruction of the fertile topsoil over large areas and in a drop of the level of subsurface waters and desiccation of soil over even larger areas, which is a major threat to our water-poor country. A still more menacing danger is represented by the pollution of air with soot and sulfur owing to the burning of vast quantities of sulfur-bearing coal.

But the draft plan states that the adoption of "the highest preference for protecting air against gaseous pollutants" is envisaged only "after 1990." This means that in the next 18 years as published virtually no facilities will be installed to protect the atmosphere against sulfur compounds. Will there still remain any forests after 1990 surrounding the coal and power basins? Will there remain anything to be protected? Should not the creators of the draft plan be encouraged to tour the Sudetens so that they would see with their own eyes the millions of cubic meters of desiccated trees--or farther still to Czechoslovakia and the GDR where the process of the destruction of forests--precisely owing to the effect of such industrial complexes as the Turoszow mine and electric power station--is even much more advanced? Must we go through the same stage and destroy forests in the Sudetens--and a couple of other regions--as well?



Has the cost of the "cheap" sulfur-high coal, which cannot be sold because no one will buy it from Poland (only pure coal or pure electrical current can be sold) been compared with the damage to forests caused by air-borne sulfur compounds? Is not it time to calculate what will happen after 20 to 30 or even 50 percent of the Sudeten forests will be destroyed? The related forecasts are becoming confirmed, quite rapidly, alas. Similar instances are happening in the neighbor countries with similar climate, similar conditions and similar fuel. Let us consider the dangerous consequences of deforestation (erosion, floods, drought) to the local population, to agriculture, to health resorts and to resources of mineral water.

The draft plan states: "A fundamental intensification of the protection of air against pollution after 1990 requires even now an intensive drafting of scientific-technical, economic and organizational measures. A particularly menacing problem is the exceptionally high pollution of air by sulfur oxides. To this end, improvements in the sanitary state of forests also are needed."

To what end? In order to improve the purity of air? So long as the amount of sulfur in air is not reduced, the sanitary state of forests in many regions will not improve, not even if the greatest effort is exerted. On the other hand the problem may just disappear--together with the forests. And so far as the "intensive drafting of scientific-technical, economic and organizational measures" to protect air against pollution is concerned, these measures have been drafted already long ago and they should not be postponed until 1990.

Have all these figures taken properly into account the cost per megawatt of electrical energy if allowance is made not only for the construction of mines and power plants but also for the destroyed topsoil, the loss of water, the damage to harvests and the destruction of forests?

It is precisely with the idea of treating the national economy as a complex and organic whole that the State Council for Environmental Protection points to the need for, among other things: "...drafting internally cohesive principles for the conduct of a comprehensive and continuous analysis of the cost effectiveness of economic activities with allowance for the losses and profits ensuing from actions promoting environmental protection, from which also appropriate relations among prices, fees, penalties and allowances should ensue."

The natural situation of several regions of our country has even now to be defined as that of ecological disaster, and actions should be concentrated on these regions in order to curtail the danger to the inhabitants. The areas in question are: Katowice Voivodship, especially the Upper Silesian Industrial District, and also the Legnica-Glogow Industrial District and the cities of Plock and Walbrzych.

Outside these special disaster areas, the principle of comprehensive environmental protection should be applied so as to maximally reduce any further degra-

dation of environment and halt it completely on the 25 percent of the country's area that has so far remained the least damaged and most valuable environmentally.

If the measures undertaken are to be conducted consistently, if the funds allocated for this purpose and the facilities installed are to produce the intended effect, the organization of environmental control should be streamlined and the monitoring organs--environmental police--should be strengthened, as is being demanded by all who are aware of the problem.

The draft of the socio-economic plan also states: "it is proposed that the highest priority be given to health protection. This is an extremely just and extremely important proposal. The draft plan proposes accomplishing three basic tasks to this end: an adequate supply of medicines improvements in regional health care, and maternity and child care. Of a certainty, the solution of these problems will be extremely useful. But the medicines are more often needed to combat diseases than to protect health; whereas if we want to protect health, to prevent disease, we should care for healthy living conditions--for healthy pure water, pure air, uncontaminated food, noise-free housing. The allocation of 30 percent of all investment outlays on housing, and of another 30 percent on food management but of only as little as less than 2 percent on environmental protection will not safeguard our health.

#### Environmental Inspection Results

Warsaw RZECZPOSPOLITA in Polish 19 Nov 82 p 3

[Article by (al): "For Greater Consistency Not Only in Inspections: Results of Inspections by the State Inspectorate for Environmental Protection"; passages enclosed in slantlines printed in boldface in source]

[Text] /As established pursuant to the Decree on Environmental Protection and Development, the State Inspectorate for Environmental Protection has already carried out many inspections in large industrial plants. Instances of activation of industrial installations lacking anti-pollution facilities have been found./

/This may be exemplified by the POLICE Chemical Plant, the "Szopienice" Non-ferrous Metals Plant, and the Kwidzyn Pulp and Paper Plant. Facilities for environmental protection are, as a rule, either installed at the very end or scheduled for installation during a future stage of plant construction. In addition to delays, improper quality of work and problems with the installation of facilities often are encountered./

The POLICE Chemical Plant has not carried out a number of anti-air pollution measures. The "Wizow" Chemical Plant in Katowice Voivodship has not installed previously acquired dust-collector equipment. Similarly, the Pulp and Paper Plant in Kwidzyn has failed to put into operation facilities for the combustion of gases and vat sediments. Likewise, the "Siarkopol" sulfur mines and sulfur-industry plants in Tarnobrzeg were found to have delayed for nearly 9 years the construction of a clarifying tank and liquid waste treatment plant.

The inspections established /an urgent need for extending central planning to the principal environmental protection projects and concentrating funds on the most urgent tasks/. This includes the protection of the bays of Puck and Gdansk by means of, in particular, the construction of Gdansk-East, Gdynia-Debogorze and Elblag sewage treatment plants and a waste dump for the Gdansk Phosphorous Fertilizers Plant. This also includes the protection of the Upper Silesian Industrial District, the Legnica-Glogow Copper District and the Gulf of Szczecin. Environmental experts stress the urgent need for reactivating such facilities as sewage purification ponds, oxidation ditches, soil filters, etc.

Environmental protection facilities were found in many cases to be improperly operated. Among other things, the elimination of irregularities in the operation of the liquid waste treatment facility at the "Wizow" Chemical Plant has been ordered, as has been the activation of dust-collecting facilities at the Aluminum Plant in Konin.

/The activities so far of the State Inspectorate for Environmental Protection warrant inferring rather optimistic conclusions. If further inspections will be conducted just as consistently, and lists of violators published just as consistently, too, it may be that the growing destruction of the environment could finally be halted./

It is important, however, that industrial plants should not regard monitoring by the Inspectorate as divine wrath--that they should understand the importance of these inspections.

1386

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DEVELOPMENT OF TECHNOLOGY FOR ECOLOGICAL PURPOSES DESCRIBED

Soviet-Polish Ecological Technology

Warsaw PRZEGLAD TECHNICZNY in Polish 7 Nov 82 pp 36-37

[Article by Daniela Baszkiewicz: "Technology for Ecological Purposes"]

[Text] /The October-November exhibition organized in Warsaw and Cracow by the House of Soviet Culture and Science jointly with the [USSR] Ministry of Instrument Making, Automation Equipment and Control Systems presents to the touring group of experts the achievements of that Ministry, whose products reach, through the mediation of the MASHPRIBORINTORG Foreign Trade Center, several dozens of countries including as well the West--among others, Great Britain, France, the FGR and Canada.] /printed in boldface/

It is not accidental that the subtitle of that exposition includes the term "Environmental Protection," because a notable place among the products manufactured by Soviet industry is occupied by devices and equipment serving ecology: currently more than 100 basic types of such devices and equipment are being produced in the USSR, and by 1985 they will be complemented with 50 more.

For technical reasons beyond the control of the organizers (lack of space) the exhibition does not include IVK computer systems for measurements and monitoring (linked to the SM-3 computer), manufactured by the USSR jointly with Poland and Hungary.

This year Soviet industry is exhibiting not only many new models of traditional apparatus--hygrometers, acidimeters, chromatographs, etc.--but also several solutions that are eliciting considerable interest. Undoubtedly noteworthy is the set of tensor-resistor mensuration converters equipped with monitoring sensors. The family of the "Shafirs," and especially "Shafir-22," is comparable in performance indicators to similar equipment manufactured by well-known Western companies. In the opinion of Oleg Razorenov, a representative of the Soviet Ministry's scientific research institute who was present at the exhibition, the "Shafirs" are distinguished by their operating stability and reliability owing to their extremely sensitive single-crystal structure elements (silicon sprayed onto sapphire). These instruments can be applied wherever the sensitivity of the

flow measurement of substances--the "Shafirs" automatically control the flow of both liquids and gases--is decisive to the safety of humans and their surroundings. They can also be used in manufacturing process control. In addition to the "Shafirs," the following devices were exhibited:

--ERIS electromagnetic flowmeters designed to measure the flow of liquids with intrinsic electrical conductivity ranging from  $10^{-3}$  to 10 siemens per meter, used for, among other things, the measurement of flow in sewerage pipes;

--TURGAZ flowmeters serving to measure the flow of gases in technological piping with flow rates of 200, 400, 800 and 1,600 cu m/hour;

--EKHO-3 S automatic sediment meter for use in liquids, designed on the principle of an acoustic converter, used not only to monitor sediments in the settling tanks of water purification plants but also in the food industry (at the exposition, in addition to the EKHO, another device performing a similar function but designed on the principle of a photoelectric signaling element was displayed);

--a family of RUS' industrial level gauges monitoring the level of dielectric fluids and conducting electrical currents in reservoirs and pipes. They can find application in any industry, e.g. in monitoring tanks containing waste fluids or corrosive fluids.

Considerable interest among the visitors was elicited by a large group of control and measuring devices traditionally manufactured in many countries but still insufficiently widespread in our country. It includes extremely well-designed, ingenious and small "gas meters, starting with the GA1-1 (which serves to measure the level of carbon monoxide in automotive exhaust gases and which is widely used in the USSR by traffic monitoring services and smaller diagnostic stations), continuing with "Atmosfera-1" and "Atmosfera-2" semiautomatic coulometric analyzers of the hydrogen sulfide and sulfur dioxide content of air, and ending with the "LGA" small laser analyzers serving to detect gas leaks, which are designed for mounting on automobiles and are unusually useful for, e.g. municipal services.

In the section of control and signaling instruments serving to protect sea areas, noteworthy are the devices for determining the degree of contamination by crude petroleum and its fractions in the bilge of seagoing vessels. These devices signal any excess content of crude petroleum in the bilge beyond the permissible level and trigger a halt in the discharge of the bilge while at the same time triggering the operation of filtration facilities.

As pointed out above, the exposition does not include specimens of Soviet and "integrated" [CEMA] computer equipment, especially the large family of minicomputers and hence I intend to complement my account of the exposition with an interview with Yaroslav Sukhodol'skiy, a representative of the organizers, an associate of the Ministry's scientific research institute and department head, who specializes in computer technology:

[Question] What do you think of the computer equipment manufactured in cooperation with other socialist countries within the framework of CEMA?

[Answer] It is at a decent technical level and performs well the functions expected of it. It is not inferior to its Western counterparts either. The cooperation [among CEMA member countries] in which MERA [Polish Automation and Industry Apparatus Association] takes an active part, has a very great future. Our ministry

/Answer/ It is at a decent technical level and performs well the functions we expect of it. It is not inferior to its Western counterparts either. The cooperation /among CEMA member countries/, in which MERA /Poland's Automation and Industry Apparatus Association/ is taking an active part, has a very great future. Our ministry already has a long-range program for establishing basic facilities for the manufacture of truly modern computer equipment meeting world standards. Under this program, further development of existing production and the establishment of new enterprises manufacturing specialized equipment are envisaged.

/Question/ Will Western sanctions, i.e. the embargo placed on computer equipment, affect adversely the growth of computerization in the USSR and hence also within the framework of CEMA?

/Answer/ I believe that the efforts of CEMA member countries at present are intended to develop computer hardware meeting their own economic needs without any urgent need to resort to Western technologies.

/Question/ In your opinion, which Polish-Soviet achievements in the automation of control processes are interesting?

/Answer/ Within the framework of the already 15 years long cooperation between our ministry and the Polish Ministry of Machinery Industry work on nine topics is under way with the participation of 11 Soviet and 9 Polish organizations. There exist departments manufacturing equipment solely for the needs of computer technology and attending to the production of a great deal of hardware and software serving for the automation of control processes. In this respect we have excellent cooperation between the Leningrad Electromechanical Plant and the MERA-PIAP. We are jointly developing automated process control systems for the production of, e.g. sulfuric acid. Such facilities are being worked out by our ministerial Institute of Information Science, Instrumentmaking, Automation Systems and Control Systems in cooperation with MERA-PNEFAL. Recently we have jointly formulated the engineering premises of the design of automated process control systems for metallurgy--chiefly of equipment for continuous casting of billets in the Katowice Iron and Steel Plant.

A highly important element in our cooperation is the development and production of panel devices for monitoring the degree of environmental pollution. In this field close cooperation exists between MERA-PNEFAL and the "Analitpribor" /Analytic Instruments/ Scientific-Technical Association in Tbilisi.

#### Neutralization of Toxic Waste

Warsaw ZYCIE WARSZAWY in Polish 5 Nov 82 p 4

/Article by (kop): "Polish Technology a Revelation to the World"/

/Text/ P. (Own information.) Everything indicates that the Polish method for neutralizing toxic (cyanide-containing) galvanic liquid wastes, whose authors were awarded a gold medal at the recently completed international review of achievements of technical thought of CEMA countries in Brno--INVEX-82--is making an international career for itself. This method consists in the simultaneous

neutralization of the wastes and recovery of metals such as silver, gold and other noble metals. The novelty lies in that the process of the elimination of wastes takes place not outside the galvanic line as had previously been traditional but as "part," so to speak of the galvanic process and prevents the formation of the liquid wastes. This means that at the same time metals are recovered.

The advantages of this method consist in its low investment cost and the prevention of the formation of liquid wastes. Also important is that the preparation used to neutralize the cyanides and simultaneously precipitate the metals is low-cost, readily accessible and does not require the import of ingredients. The outlays on using the new method are 70 percent lower than when using conventional methods.

The new method was sold in April of this year to the United States by the METAL-EXPORT enterprise. It will be applied (for the time being, promotionally) in two French plants. Negotiations are currently under way for the acquisition of the Polish technology by the FRG and the GDR. Interest has also been shown by Hungary, Czechoslovakia, Bulgaria and the Soviet Union, and recently also--as a result of the exposition in Brno--by Japan.

The novel facility, which was designed by Engineer Franciszek Tuznik and Andrzej Lis of the Institute of Precision Mechanics in Warsaw, has already been granted nine patents in Poland, two in the United States and one each in the FRG, France and Great Britain.

1386

CSO: 5000/3004

BRIEFS

QUARRY DUST PROBLEM--The Environmental Department of the Ministry of Health is carrying out a number of studies on the levels of dust coming from quarries in the Green Hill area and the effect it is having on plant life, property and particularly to people's health. This was told to the House of Assembly yesterday by Minister of Health, Mr. L. B. Brathwaite, during resumption of debate on the Second Reading of a Bill to revise and consolidate the law relating to factories and the safety, health and welfare of persons employed therein. Mr. Brathwaite noted that the Bill before the House did not take into account the community at large but dealt with people at the workplace. He added, however, that "the time has come when we must find mechanisms," which would take into account people who are defenceless. "We must look at problems which are brought from an environmental point of view," he said. Mr. Brathwaite noted that the "influential set of people" who live to the east of Portvale factory in St. James were able to fight against the high noise levels coming from that factory. But he said the Lodge Hill residents were not so influential where money was concerned and wondered if there was a lawyer who could take up their case on a free-of-charge basis. The Health Minister said his ministry has spoken to the relevant factory owners and informed them of what is taking place. [Text] [Bridgetown ADVOCATE-NEWS in English 2 Dec 82 p 1]

CSO: 5000/7525



'GUARDIAN' OFFERS WIDE-RANGING CRITIQUE OF ENVIRONMENT

Port-of-Spain GUARDIAN in English 19 Dec 82 pp 3, 14

[Text]

**WE ARE** a dirty bunch, and our filth is threatening to choke our minds, in addition to contaminating our surroundings.

Our filth is no longer restricted to the occasional rotting carcass on the side of the road because as the vehicle population has increased, so has the incidence of maggot-infested animals, from dogs and cats to the odd cow or bison.

No longer is it a case of unpleasant odours offending our nostrils, but rather, an offensiveness, a coarseness and a vulgarity that is creeping into every aspect of our living; and just as we are the products of our environment and our circumstances, so too are we becoming the product of mounting filth in our lives.

What is insidious and dangerous is that given enough assaults and a sufficiently overwhelming level of incidents, our human senses tend to become jaded and indifferent. We become accustomed to the filth. We fail to see it. We fail to smell it. We fail to detect it.

And we fail to notice that its influence and its rot are creeping into our thinking and into our lives. Excess tends to blunt the senses and we could actually sink into a mire...and enjoy every moment of it, until it is too late.

Evidence of the dirt and filth in our lives abounds. Our highways and main thoroughfares are constantly littered and filthy. Arteries that are gruesome, rubble-strewn, and generally, rank.

Again largely because our senses have become dulled by surfeit, we fail to notice that the guard-rails on the centre strip of the Beetham Highway, a principal part of the most heavily

trafficked corridor in Trinidad and Tobago, are either missing, or are dismantled, dented and twisted.

They have even been known to protrude into the path of fast moving vehicles! Once upon a time it was popular to remove the rails when they were damaged.

But we have progressed, and the twisted mess is left indefinitely, the only hope being the weeds which come up, wet season or dry season, and soon smother and hide everything with an arrogant, ill-assorted

growth of dirty, scraggly limbs and leaves, trimmed only by the passing traffic on the sides; and the constraints of matted dirt and garbage on the tops.

Much more of the same continues along the extremely busy arterial link to San Fernando. Beyond Chaguanas and the understandable inconveniences of the 13-kilometre road construction site south of the Churchill-Roosevelt Junction, the Hochoy Highway is a minor disaster area.

## JUNK

Debris from the regular accidents pollutes the road sides. There are pools of glass at least once every 300 metres. Bits of fender and the left-overs of collisions are abandoned to the elements for 'attention.' (Off the highway itself, one can see wrecks which we were told in the heady days of the middle '70's, would be removed and gobbled up by the steel mill at Point Lisas in a recycling process meant to convert dirty junk into clean steel and rid our countryside of these metallic pock-marks.

Like the promise of no more outages, this too has gone into the land of oblivion.

There are other signs of collapse and indifference. The road shoulder vanishes at points; landslips take months to be repaired; and shanty towns are springing up close to the edge of the thoroughfare with their own series of death-defying, illegal road connections with the highway.

The road surface itself is wrinkled for long distances, and at others, resembles a roller-coaster.

Generally, we are talking about a most critical breakdown in the development process — the lack of maintenance. It seems that nearly nothing is kept in working order and that everything is allowed to go to absolute and total ruin before some grand and usually very expensive plan is devised for a crash effort to do a total rebuilding job.

So that light posts, for instance, that get smashed by careering cars, remain distorted and knocked-out for months.

The ceaseless procession of dead animals is eaten, dried, and blown away by nature, the corbeaux being far too sensible to risk life and feather cleaning-up the mess as they once used to do.

Not many years ago, one used to see the occasional person swimming in a natural pool formed by the Maraval River immediately south of the bridge crossing from Tragarete Road to the Western Main Road.

Alas, that river is now a paved, over-grown, ugly drain; and similar pools on other rivers flowing out of the Northern Range such as the San Juan River and the St. Joseph River, the latter in particular, have become open sewers.

## DEBRIS

It is hard to believe that the St. Joseph River was once a navigable course for small craft up which the British forces once stormed the former capital of St. Joseph for its capture! Only in the upper reaches can one still find a water-hole for swimming.

The Field Naturalists have reported that the famous pool fed by the waterfall at Paria, a secluded spot on the North Coast which can only be reached by the determined and the hardy, is now attracting, metal cans and other forms of debris left by local tourists.

As one would suspect, the roads and trails leading to many of our more picturesque locations are likewise becoming ribbons of litter with occasional concentrations.

The Morne Coco Road wends its way through the lower reaches of the Northern Range surrounded by beautiful trees and vines and exquisite views of the Petit Valley area, a set-

ting of blues and greens replete with little streams at the side of the road.

What a pity that this scenic drive now has at least four major dumping areas which can neither be missed visually nor nasally. The road to Blanchisseuse from Arima is no different with the exception that if you get close enough to the river as one would at points, then it too smells, though not quite as offensively as the Maracas — St. Joseph River whose rich broth of pig and chicken droppings have added a discolouration never intended by nature.

Undeniably many of these faults and problems are part and parcel of development, and need special efforts and legis-

lation to control, if not prevent. Just as undeniably, it takes special effort to curb these abuses.

The tragedy of Trinidad and Tobago is that the situation is worsening inexorably. And though the despoilation of our environment is bad enough by itself, the psychological effect on the population is worse.

## INDIFFERENCE.

This is because the population and particularly the young people feel that dirt, filth, spoilage, indifference and squalour are the way things are supposed to be. Levels of tolerance fall.

Standards decline. Laissez-faire becomes a way of life. First in the visible spectrum and then in the mental reaches as young people feel they do not have to order their surroundings or their lives because "Don't we all live happily ever after in muck and mess?"

Why should a young person think of straightening up his or her room or desk or his or her life when all around he sees signs of decay...though bathed in lots of money?

Then the conclusion is even more hideous namely, that one can be rich while being a slob.

Nor is this thinking restricted to young people or the just plain average citizen. Its crippling little claws reach into our establishments and into our patterns of living. Piarco Airport is a dump and it remains that way.

Crown Point Airport is a certified out-house and everyone thinks the smells are refreshing. The General Post Office in Port-of-Spain should be renamed the General Postal Dump having been an anachronism in size and function from the day it was opened.

We have so much ambition and so much hope for our stocks and shares, that we stick the Stock Exchange in poky premises on Independence Square. We sincerely hope it finds a more appropriate setting in the new Financial Complex. Even as a temporary measure however, it is much below what one would expect.

Even as a temporary measure however, it is much below what one would expect.

Eventually, a despoiled environment not only influences the mind but the mind then turns around and further despoils the environment as with the case of our garbage strewing, and our garbage collection.

The latter is generally way short of acceptable levels. Many of the drains in Port-of-Spain and beyond, including places like the built-up areas of Aranguez and El Socorro, are cesspools of filth.

The only thing that keeps down the mosquito population is the presence in some of them of he irrespressible guabin ("wa-been").

But if one is disinclined to go to Aranguez or Princes Town to see a filthy drain, then one can see a genuinely live and leaping one in front of the Ministry of External Affairs on the southern perimeter of the Savannah.

It is so dirty that maggots and other forms of

energetic vermin have converted it into a permanent home.

In the Savannah and in recreation areas generally trees are hacked down, or are killed by vines and parasites.

They are neither cured or replaced. Our parks become public living quarters and fewer so often, bathing areas.

And yet, despite all of this sacrilegious treatment of our environment, one can look up to that high ridge immediately west of Mount St. Benedict and see a savannah that has been recultivated with a splendid stand of Honduran pines planted by the noted forestry expert Dr. Bal Ramdial.

This then raises an amazing question — How is it possible for people like Dr. Ramdial to co-exist with the situation of runaway filth? Is it that someone is refusing to use the services of this man and people like him, in beautifying and improving our country? Are they being deliberately thwarted and frustrated?

It stands to reason that people like Dr.

Ramdial are not isolated examples of those who care. What is being done to the others? Or are they too, soon to join the list of Green Card seekers, looking for a home in the United States which will then benefit from their commitment?

For that matter, how many citizens are being wrongly influenced by visual pollutants such as the vendors' booths down-town? The ramshackle structures have two, built-in side effects. They destroy the environment, and circumscribe the enterprise of their entrepreneurs.

Who is it that is afraid to do what is right, set up the correct physical and financial structures, and insist that they be carried out for the betterment of the stall-owners and the public?

There is no one person to blame for this epidemic of ugliness and pollution. We are all guilty of wallowing in filth and perpetuating it. The question is — How much longer do we have?

GANGES POLLUTION POSES THREAT TO ANIMAL LIFE

Madras THE HINDU in English 7 Dec 82 p 10

[Text] Patna, Dec. 6.

The Ganga is heavily polluted and poses a serious threat to animal and plant life. A survey by the Centre for Development Studies of the Patna University of the Ganga basin in Bihar showed that the water of the river had been polluted by human and animal excreta, chemical fertilizers, pesticides and insecticides and domestic and industrial effluents. To make matters worse, the volume and flow of the Holy river and its tributaries have decreased for various reasons.

The survey conducted at the instance of the State Water Pollution Control and Prevention Board says that fertilizers used in fields are discharged into the river and its tributaries adding to the level of pollution. In the coal belt, solid wastes discharged into the Damodar find their way to the Ganga.

The survey report says: "Apart from chemicals derived from agricultural sources, solid and liquid pollutants from urban areas also are the major contributors to pollution load. These include dissolved and suspended matter, inorganic materials such as metals and salts, chemical solutions as well as bacteria and viruses".

As urban wastes are discharged without chemical treatment, the resultant pollution is enormous. Similarly discharge of industrial effluents, often untreated, is also very high. Both domestic wastes, containing micro-organisms and pathogens and industrial effluents, containing toxic chemicals, can harm, even destroy, animal and plant life.

To reduce such pollution the survey has recommended treatment plants for removing pathogen bacteria and viruses, introduction of sedimentation process to remove solids from sewage and industrial wastes, drainage of marshes in plains and terraced farming in the plateaus.

CSO: 5000/7018

## GREEK OIL TANKER CATCHES FIRE IN GULF WATERS

### Fire Guts Tanker

GF111536 Muscat Domestic Service in Arabic 1300 GMT 11 Jan 83

[Summary from poor reception] Early in the morning of Friday, 7 January, a fire gutted a Greek oil tanker about 60 miles northwest of Muscat while carrying 53,500 tons of Iranian crude oil. Omani coastal and naval police immediately rescued the crew of the oil tanker who had abandoned ship. They also tried to extinguish the fire but to no avail.

On 10 January, storage tanks of crude oil exploded so that no attempts to extinguish the fire succeeded. Fire is still raging and oil has begun leaking into the sea.

A team was formed to take all necessary measures to combat pollution resulting from this incident. The team studied the dimensions of the incident and has made appropriate decisions. The team contacted the specialists in the sister Gulf states and regional and international organizations specialized in combatting oil pollution to get aid in meeting this disaster. All the concerned local, regional and international parties have been informed of the declaring of the area of the incident as a danger zone and of warning all ships and fishing boats not to approach it.

Later on, the Council of Environmental Protection and Combatting Pollution issued a statement saying that the fire had gutted all oil storage tanks and that huge quantities of oil now float on the sea water.

### Status of Leakage

GF121731 Muscat Domestic Service in Arabic 1600 GMT 12 Jan 83

[Text] We have just received the following from the Council of Protection of the Environment and Combatting of Pollution: As a result of the extensive efforts exerted by the work team--to contain the pollution resulting from the oil leakage from the Greek oil tanker--one of the trawlers this evening made a daring attempt to tow the tanker from the site of the incident in order to remove it from the site of fires [which continued to ignite] in the floating oil. This attempt was successful, and thus the

source of the oil leakage--from the oil tanker--was isolated from the fires, and the [spread of] fire on the sea's surface was checked. But huge amounts of oil continue to leak from the storage tanks. Efforts are being exerted to tow the tanker to the farthest possible distance in the sea in order to avert the bad effects of this leakage. So the council can announce that the expected pollution of the sea is under control. But there is still the possibility that fire can break out again on the tanker. Therefore, the work team continues to adopt the necessary measures and precautions to lessen this danger and limit the spread of the oil pollution.

#### Tanker Sinks

GF161446 Doha QNA in Arabic 0955 GMT 16 Jan 82

[Excerpt] Muscat, 16 Jan (QNA)--The Greek oil tanker Assimi, which was gutted by fire last Tuesday, began to gradually sink 210 miles east of Muscat.

The QNA correspondent in Muscat says now that the tanker is sunk, the state of danger posed by the tanker to the Omani navigation is now over.

CSO: 5000/4507

## BRIEFS

DROUGHT DAMAGES--Production of the four main food crops, sorghum, maize, millet and beans, has dropped better than 70 percent below the 1981 levels and 54 000 metric tons in Botswana, an Agricultural Situation Report released recently by the Ministry of Agriculture states. According to the report, present estimates indicate that only 15 000 metric tons of the four food crops were harvested from a total of 245 000 hectares planted during the 1982 crop year. "Only about 35 percent of this planted hectareage was harvested. During normal years, at least 80 percent of planted hectareage is harvested," the report says. On the cattle side it states that the mortality rate is higher in 1982 when compared to 1981, 17 percent versus 12 respectively. The final 1982 estimates are expected to indicate a slight increase over the sales of 1981 and home slaughter ratios of 7,8 and 0,8 percent, probably as a result of drought conditions experienced throughout 1982. The Agricultural Situation Report further states that the dramatic weight losses and cattle deaths reported since August this year are now declining as a result of widespread rainfall. It also states that cattle in most areas were rated in a fair condition compared to previous months, except in the Tati and Tutume districts where, although cattle conditions have somewhat improved, they are still rated poor. Major improvements in the water position have been noted in all areas except the Kgalagadi district and the Maun region. The water supplies in these areas it states were reported as fair to poor in comparison with good supplies reported for the rest of the country. As a result of improvement in the water situation there has been improvement in both grazing and livestock conditions, the report concludes. [Text] [Gaborone DAILY NEWS in English 29 Dec 82 p 1]

CSO: 5000/73

# MONEY PROVIDED FOR EROSION IN SOKOTO STATE

Kaduna NEW NIGERIAN in English 7 Dec 82 p 11

[Article by Adebisi Adekunle]

[Text]

FEDERAL Government has donated 400,000 Naira to the Sokoto State Government as a provisional measure for tackling the problems of gully erosion in some parts of the state.

The cheque for the amount was presented to the Sokoto State Governor, Dr. Garba Nadama by the Special Adviser to the President on parastatals, Chief O.O. Olaifa at the Governor's Office in Sokoto last Wednesday.

Governor Nadama, in receiving the cheque described the amount as too meagre since, according to him, the erosion was not peculiar to an area.

The areas affected by the erosion are Isa, Shinkafi, Gwadabawa, Gusau, Sokoto, Arewa Dandi, Yabo and Argungu.

He said Sokoto State had, for the past two years, been facing the problems of drought, erosion and desert encroachment which he said the federal government was fully aware of.

The Federal Government, Dr. Nadama said should have made available to his state, the one percent disaster ecological funds to enable his government tackle this problem.

Dr. Nadama pointed out that his government had realised the efforts the federal government was making to solve the problems but added that temporary

measures would not yield a good result.

"The federal government should only find a permanent solution to the problems of erosion at least on river Bunsuru and Gajere which are yearly problems.

He added that "all what my government and the federal government had been doing was not enough to assist and solve the problems of the inhabitants of these areas despite the fact that the government has been mobilising equipment to aid the inhabitants in diverting the River annually."

He added that given a meagre amount of money to make provisional arrangement was not the right step to be taken at the moment.

Earlier, Chief Olaifa told the governor that the amount was to solve the immediate problem of constructing embankments to check the movement of the erosion in the most difficult areas pending when the one percent disaster ecological fund for the state would be approved.

The presidential adviser said the disaster ecological funds meant for the state was on a final stage of approval adding that when approved there would be enough sum of money to tackle the problem



MAN BLAMED FOR DISASTROUS EFFECT OF DROUGHT IN TRANSVAAL

Johannesburg SUNDAY TIMES in English 19 Dec 82 p 13

[Article by John Varty, noted ecologist and co-manager of Londolozi game reserve: "Drought Brings Hunger, But Fences Cause Starvation"]

[Text] MAN is to blame for the devastating effects of the great drought in the Eastern Transvaal.

By fencing in wildlife in game parks, we have destroyed their ability to migrate and so survive long dry spells.

Animals are dying by the thousands in the Lowveld.

Carnivores are sated with meat. Vultures are so full they are not flying full-time.

There is so much rotting meat on the ground and the weakened species are such easy prey that predators are heavy with meat and inactive.

And rotten carcasses are encouraging the spread of disease.

It has been almost nine months since a soaking rain fell on the Lowveld. As a result, tree and bush leaves did not sprout at the end of winter.

That deprived impala, nyala, kudu and bushbuck of necessary food. Only high or low feeders, such as giraffe, duiker and steenbuck could scrape through.

Many of our losses at Londolozi have been pregnant female impalas, some in the process of lambing.

### Destroyed

Some animals step into drying waterholes, get stuck and are too weak to extricate themselves.

Others, seeking better browsing, try to get through fences surrounding the parks and die on the wire.

Permanent waterholes have dried up, small streams are not running and the

watertable has dropped drastically.

In 1926 my grandfather travelled by ox wagon through an area from the Drakensberg eastwards to Mozambique, which was rich in game.

All the major rivers flow eastwards from the escarpment.

In other words, the natural animal movement along these river systems — the Sabi, Olifants, Sand and Letaba Rivers — was east to west and back.

Today, the north-south fences of the Kruger National Park and the Sabi River, Timbavati and Klaserie game reserves have destroyed this once great migration.

In addition, the Manyelletti game reserve and a host of small, non-viable fenced game ranches of extraordinary shapes and sizes make no ecological sense.

It is clear that political and not ecological considerations governed the erecting of boundary fences.

Elephants and other animals must sometimes cross unprotected areas between game parks, and are shot on the pretext they are raiding crops or livestock.

### No sense

It does not make any sense.

I had the good fortune to work for the Kenyan Government in 1980 and I will never forget the sight of 300 000 wildebeest pouring out of the Serengetti into the Masai Mara, which itself had a population of one million wildebeest.

I pondered why this nature system was so productive. Why could it maintain so many more animals than we could?

The answer is simple: there are no fences.

The animals often spend as much as a third of their time outside the park boundaries.

Man and his fences have prevented the very thing that makes wild animals highly efficient in low rainfall areas — the ability to move.

Game animals, although often much less dependent on water than cattle, do, however, require great mobility to take advantage of good conditions and avoid the bad.

Fence them in and you destroy their incredible efficiency.

As you fly above the Lowveld you see huge, finger-like erosion spreading out like a giant octopus across the landscape. These are dongas or dry river beds.

When rain comes, the precious water rushes away down these beds, depositing its valuable top soil in the rivers as silt — and is given to Mozambique gratis.

There are also large eroded areas where hooves have compacted the earth. So, even when it rains, water will not penetrate the soil.

## Vulnerable

The downgrading of the Lowveld leaves us more vulnerable for the next drought.

The species which selectively graze on areas where the watertable is high have all diminished dramatically across the Lowveld.

Sable, roan, tsessebe and reedbuck all feed in the high-watertable vleis. If water is lost, these rare species will disappear.

Apart from the misplaced fences, many of our roads, firebreaks and artificial water points are further accelerating the process.

The animals, unable to migrate, are forced to over-use the habitat, thus destroying the grass and other vegetation.

This results in less transpiration of moisture from plants into the atmosphere and, therefore, less rain.

Man is thus helping to create droughts.

This year every park in the Lowveld has experienced the death of numerous species.

At the same time protein deficient populations live around these parks.

Last year R15-million worth of venison was exported from South Africa. Some R550-million in foreign currency was generated by tourism alone in 1981.

No one can ignore the fact that wildlife is a valuable resource.

## Lucrative

What is desperately needed is to tap it on a sustained yield basis.

South African veterinary regulations prevent the removal of game meat

from these park areas into, for instance, Gazankulu and Lebowa.

The incentive for the game farmers to manage their animal populations vanishes as there is no readily available market.

Dry meat, cooked or canned, can be removed but this needs a capital outlay.

The 1982 drought should give the South African Government pause and, hopefully, make it think about:

First, the removal of game fences hindering the wildlife industry in the Eastern Transvaal and causing downgrading and die-offs in the dry seasons.

Second, financial assistance to all game farmers and reserves to restore watertables and prevent erosion.

Last, encouraging the creation of homelands' game parks which would provide a lucrative tourist industry and food for the people.

## DROUGHT LOSSES IN TRANSVAAL REPORTED

Johannesburg THE CITIZEN in English 4 Jan 83 pp 1, 2

[Text] **THE drought now gripping the Northern and Eastern Transvaal has caused damage between R130- and R150-million to summer crops and if farmers are forced to buy winter fodder, this loss could be closer to R200-million.**

A spokesman for the Eastern Transvaal co-operative — OTK Beperk — Mr D C de Wet told The Citizen yesterday that a million tons of maize had already been lost.

"This has been the driest year since the records were begun in 1915", said Mr De Wet. "According to our figures 60 percent of the maize crop in the area is stunted. By now the plants should have grown past the 120 centimetre mark, but most are less than half that."

Mr De Wet also disclosed that there had been a large loss of winter seed for animals in the area and expressed concern over the prospect of farmers buying winter-fodder.

"It's all very well to say that farmers should buy fodder for winter feeding, but this area is the biggest producer of cattle fodder in the country. The fact of the matter is that there is a severe shortage of fodder everywhere.

"Last year's rainfall was enough to bring the maize crop to the surface, but after that the rains just deserted us.

"To salvage 50 percent of the area's maize crop, we need 50 mm of rain every week from now on and there is small chance of that.

"Last year we had a 40 percent crop failure. The area is now in desperate straits."

Mr De Wet said one of the chemicals used to treat the land to make it more suitable to grow maize had rendered it useless for any other crops.

"The chemical will kill anything you plant apart from maize. If things go right from now on the area may produce six to seven million tons of

maize — which is enough for local consumption," he said.

Commerce in the Eastern Transvaal is based on farming and the potato crop in the area is also being hard hit by the drought. Local opinion is that consumers will see an increase in prices because of the drought.

Most of the livestock in the area appears to be in good condition at present; however, Mr De Wet told The Citizen, this will not last.

"Sixty-two percent of the sheep and 39 percent of the cattle in the Transvaal are in this area. They are going to die of thirst if the rains do not come," he said.

"Farmers are already trying to sell off their animals, but prices are deflated. The farmers are in a desperate dilemma.

The secretary of the Transvaal Agricultural

Union, Mr Flip du Plooy, announced yesterday that the Minister of Agriculture, Mr Greyling Wentzel, executives from the Department of Agriculture and members of the Union would visit the drought-stricken Northern Transvaal and attend a conference with the co-operatives in Potgietersrus on January 11.

A trip to the Western Transvaal is scheduled for January 17.

A spokesman for the Department of Agriculture said that the findings of Mr Wentzel's visit to the Eastern Transvaal last Friday would have to be analysed before any assistance could be rendered to the farmers.

A spokesman for the Department of Water Affairs said that the water level in the Vaal Dam was only 44 percent — no increase on last week's figure. Figures for other dams were unavailable.

## CISKEI SEEKS GOVERNMENT DROUGHT ASSISTANCE

Johannesburg THE CITIZEN in English 13 Jan 83 p 3

[Article by Glenda Gaitz]

[Excerpt]

Meanwhile Ciskei, declared a disaster area because of the drought, has approached the South African Government for emergency relief aid, reports Sapa.

The water shortage has become so severe that the SA Defence Force and the Ciskei Defence Force are co-operating to distribute water as part of the drought relief programme.

The director of planning in the office of the Ciskeian Presidency, Mr Gary Godden, said more than 50 water tanks were driving around Ciskei taking water to the most hard-pressed areas. Drinking water was being moved in military vehicles from available sources in Ciskei to distribution points in the King William's Town-Zwelitsha area.

**Relief**

Mr Godden said the R6-million in relief aid granted by the SA Government last April had been exhausted. He said dams were dry, rivers had stopped flowing, crops

were almost a total failure, grazing was virtually non-existent in many parts and many head of livestock were unlikely to survive winter.

Uitenhage, Graaff-Reinet and Fort Beaufort have become the latest Eastern Cape towns to impose water restrictions.

The situation at Fort Beaufort appears to be most critical with the Kat River Dam, which is virtually their only supply of water, now only 15,7 percent full.

Gardens may only be watered on Wednesdays and Saturdays between the hours of 6 am and 9pm and the use of sprinklers is forbidden.

Uitenhage yesterday introduced less severe restrictions concerning the watering of gardens while the mayor of Graaff-Reinet said the town council decided water restrictions were essential and would come into effect tomorrow.

The severe drought which has hit South Africa continues to take its toll of maize crops daily.

The chairman of the National Maize Producers' Organisation, Mr

Hennie de Jager, estimated that 50 percent (7 million tons) of the potential crop yield had already been lost.

If it did not rain soon, there would be an average five percent decrease in daily crop yields.

Good rains would mean the crops had a seven million ton potential, while no rains within 10 days would mean a four million ton potential — the lowest in many years, he said.

**Crops**

The assistant secretary of the Transvaal Agricultural Union, Mr J Human, said: "The situation is still the same. The maize, sunflower and groundnut crops are very bad as a result of the drought."

If the drought continued, it would influence the whole economy, Mr Human added. Nearly 38,7 percent of small businesses on the platteland depend on agriculture.

Despite some rain in Maritzburg on Tuesday night, river levels remained the lowest for many

years as more than 1 000 canoeists set out on the 1983 Mainstay Dusi canoe marathon in the city yesterday morning.

Early leaders after the 7.30am start were crack doubles team Graeme Pope-Ellis and Tim Cornish, followed closely by Tim and Danny Biggs, while Lance Park, Robbie Stewart and Mike Tocknell headed the singles section.

"It's going to be mud, sweat and tears all the way," said one veteran competitor gloomily as he eyed the low level of the river. He added the four millimetres of rain which had fallen overnight would serve merely to make the banks of the river slippery for those who elected to portage rather than attempt to paddle the many shallow rocky channels on the 40km first day course.

Mr Ernie Pearcen, Dusi organiser, said the river was the lowest it had been for at least 10 years and predicted a slow, tough marathon for the 1 014 canoeists manning a record number of 773 boats.

# WATER CUTS LOOM AS DROUGHT CONDITIONS EMPTY DAMS

Johannesburg THE CITIZEN in English 31 Dec 82 p 5

[Article by Marilyn Cohen]

[Text] **THE** drought is worsening and dams in South Africa are emptying, increasing the possibility of widespread water restrictions unless it rains within the next two months.

Already restrictions have been imposed on water from the Komatie and Crocodile rivers in the Eastern Transvaal.

Although the national average capacity for dams is only 10 percent down on last year's average of 53 percent, in some areas, such as the Transvaal, dams are on average 30 to 40 percent emptier than in December 1981.

The biggest drop has occurred in the Eastern Transvaal where dams are, on average, only 44 percent full this week compared with 45 percent last week and 81 percent last year.

The Loskop Dam near Bronkhorstspuit

is now 29 percent full. In the Western Transvaal dams are on average 54 percent full compared with last year's figure of 85 percent.

Large drops in dam capacities in the Eastern Cape — from 73 percent last year to 48 percent now — and in the Vaal River system — from 69 percent to 47 percent — have also occurred.

But the worst-affected area is Natal where the drought is entering its third year. There the average capacity of dams is a mere 15 percent at present — a drop of one percent from last week and four percent since last year. A major dam at Albert Falls is 10 percent full while the Midmar Dam has 46 percent of its capacity.

Only dams in the Western Cape and in the Upper Orange River system have retained high capacities and are 73 percent and 71 percent full respectively.

The Vaal Dam, which supplies water to most of the Vaal Triangle, is currently 44 percent full and Hartbeespoort Dam 49 percent, compared with the H F Verwoerd Dam (74 percent) and the P K le Roux Dam (77 percent).

A spokesman for the Department of Water Affairs said yesterday because most important dams were large, they could survive a year or two of drought conditions.

WATER BAN IN TRANSVAAL EFFECTIVE FROM TODAY

Johannesburg THE CITIZEN in English 14 Jan 83 p 3

[Article by Terry Robertson]

[Text]

**DRASTIC** and immediate water restrictions have been introduced by the Rand Water Board in major areas of the Transvaal.

The board issued a statement yesterday imposing a complete ban on the use of water for all gardens, sportsfields, public gardens, bowling greens, golf courses and street watering from 8 am today.

The restrictions apply to the area controlled by the water board — an area bordered by Pretoria, Rustenburg, Sasolburg, Vereeniging and Bethal.

A spokesman for the Rand Water Board, Mr A B Hardwick said the high-lying areas, which included Johannesburg and Pretoria, were worst affected.

Both Johannesburg and Pretoria city councils have urged people to use water as sparingly as possible. Pretorians were warned that more drastic restrictions might be imposed if efforts were not made to comply with the restrictions.

Mr Hardwick, deputy chief engineer for the board told The Citizen yesterday that the restrictions were necessary because of the drought and an interruption in the supply of electricity to the board's pumping station on the Vaal near Vereeniging.

Water in all the storage reservoirs was at a critical level. Although the station had resumed pumping by yesterday afternoon it would take time before the reservoirs were replenished.

The drought and heat-

wave conditions have worsened the situation. The level of the Vaal Dam was the lowest in 11 years, he said. The dam is about 43 percent full while the average for previous years was about 80 percent.

Mr John Bates, public relations officer for the Johannesburg City Engineer's Department told The Citizen that certain areas in Johannesburg have been without water because of the breakdown at the pump station.

Brixton, Hursthill, Jan Hofmeyer, Mayfair West, Westdene, Crosby and parts of Vrededorp and Auckland Park were without water from Wednesday evening.

Mobile tankers had to be set up in the areas to allow residents to draw water. This will be maintained, he said, until the situation improved.

## SADF AIDS FARMERS HURT BY DROUGHT

Johannesburg THE CITIZEN in English 14 Jan 83 p 3

[Article by Keith Abendroth and Laura Yeatman]

[Text]

**THE SA Defence Force** is to help the country's drought hamstrung farmers — by making available Defence Force ground to the farmers for grazing purposes.

The Minister of Defence, General Magnus Malan, said in Cape Town last night: "This is one way in which the Defence Force can back up the farmer, who is facing one of the worst droughts ever."

The Defence Force owned large tracts of land throughout the country. However, not all of it was suitable for grazing, and some was used for the training of soldiers. Some was also being used for the re-establishment of game from the Defence Forces' own nature reserves.

"But I have instructed the Chief of the Defence Force to make available as much ground as is practical," said Gen Malan.

The force was now busy identifying available ground. A further announcement on its availability would be made soon.

The allocation of grazing to all farmers, including those on smallholdings, would be done in consultation and co-operation with the SA Agricultural Union and the provincial agricultural unions, he said.

The drought in the Transvaal is worst in the northern and eastern areas.

Summer crops — maize, oil seeds and sorghum — are down by 50 percent in Eastern Transvaal. The drought in the Northern Transvaal has reached a critical stage and very little grazing remains for the cattle.

In the rest of the Transvaal the position is not much better. Mr Piet Ebersohn, a spokesman for the South African Agricultural Union, told The Citizen. The yield of crops in the Western

Transvaal is down by about 40 percent.

In some areas in the Orange Free State, such as Bethlehem, farmers do not expect to harvest any of the summer crops.

Although there is little grazing in the southern OFS, the stock is in a good condition.

However, rain which fell in the Western Cape has damaged fruit crops.

Farming which relies on the Riet River irrigation scheme in the Northern Cape has come to a standstill as the river has dried up.

The drought is still severe in the rest of the region and there is very little grazing left. The Government has had to subsidise farmers to keep them going.

In the Eastern Cape there is no surface water and boreholes are drying up. Farmers are forced to transport water to their animals.

The pineapple crop in the Eastern Cape has

been damaged by the sun, but the extent of the damage is not evident yet according to Mr Ebersohn.

Soaking rains fell over Durban and the Natal South Coast, but prospects of rain breaking the critical drought inland and on the North Coast, remain gloomy. At Utrecht and Vryheid farmers have been receiving drought relief from the Government.

According to the general manager of the S A Cane Growers' Association, Mr E Morrison, the sugar crop is down to 2,14 million tons instead of the normal 2,3 million tons.

In East Griqualand, some farmers have had to trek their livestock to other districts as there is no surface water.

Rain has fallen in northern and central South West Africa but the south-eastern and southern parts of the country have received no rain this season.

# NATION SEEN LAGGING IN ASBESTOS CONTROL

Johannesburg THE STAR in English 14 Dec 82 p 4

[Article by Pamela Kleinot]

[Text]

South Africa did the first definitive report on asbestos exposure and disease but lagged behind the rest of the world in setting and ensuring acceptable fibre levels in the working environment, the South African Medical Journal has said.

An editorial on "The asbestos hazard" predicted that South Africa would continue to see abundant asbestos-related disease during the next half-century, as it took up to 50 years before the onset of disease after being exposed to asbestos.

The editorial said that in 1979, 53 percent of all pneumoconiosis cases in white miners and 15 percent in blacks were from asbestos-related diseases. (Pneumoconiosis is a disease of the lungs caused by inhaled dust).

Asbestos is an important component of cement, insulating materials, friction products, textiles, paper and plastic products.

During the past 80 years a lot of evidence

has been gathered on the harmful effects of asbestos on health, resulting in increasingly stringent standards being set for permissible atmospheric levels, to protect industrial workers.

Although crocidolite (blue) and amosite (brown) make up only seven percent of world asbestos production they appear to be the most dangerous fibres in causing mesotheliomas (asbestos-induced tumour) and lung cancer. These types of asbestos are produced almost exclusively in South Africa and Western Australia.

Asbestosis occurs in workers with heavy, prolonged exposure to the fibre and workers in the insulation industry appear to be most at risk, the editorial says.

Until 1975 the guideline for asbestos mines was 45 fibres per ml, reduced to 12 fibres per ml between 1975 and 1981 and to five fibres per ml in 1982.

"Strict enforcement of this standard is not yet practised. While South Africa produces

only six percent of the world's asbestos, half is crocidolite and this constitutes the great majority of world production of this fibre," the editorial said.

"It is important that the lessons learned in other countries be applied in South Africa without waiting for the inevitable ill-effects of outdated safety regulations to be inflicted upon another generation of workers."

CSO: 5000/67



## BRIEFS

NATAL DROUGHT WORSENS--AGRICULTURAL conditions in certain parts of Natal are deteriorating and in the Utrecht district, which received drought relief, 10 percent of young maize plants have wilted because of the drought. Grazing has been depleted and dams and rivers are bone dry. Drought in the Free State has boosted salt production considerably and the province has a sizeable surplus at present. The manager of a salt co-operative near Soutpan--Mr De Beer--says the drought has resulted in unbroken production and large quantities of salt are being produced for stockpiling as the supply is now exceeding demand. He said the price of salt would be increased by 15 percent from the beginning of next year to offset increased transport costs. Widespread rain fell over the Kruger National Park and many other drought-stricken parts of the north-eastern Transvaal at the weekend. The acting chief-director of the Parks Board, Mr Piet van Wyk said in Pretoria 50 mm of rain had fallen at Letaba on Saturday evening and that good downfalls had also been measured at Lower Sabie which had 64 mm, Skukusa, which had 49 millimetres and Crocodile Bridge which had 30 mm. The Nebo district of Lebowa has had a record downfall of rain for the year. A cloudburst of 330 mm in the district within a period of three hours left the whole area flooded. Extensive damage has been caused to crops and small stock, including poultry, killed by the rain. [Text] [Johannesburg THE CITIZEN in English 28 Dec 82 p 10]

RAIN PRAYER ANSWERED--KING WILLIAM'S TOWN--Rain started falling and water running from the mountains after nine Ciskeian Cabinet Ministers and 12 clergymen attended a prayer day for rain at the shrine at Ntaba-ka-Ndoda near King William's Town yesterday. Ciskei's Vice-President, the Rev Xaba, gave thanks for the rain at the end of the service. [Text] [Johannesburg THE CITIZEN in English 24 Dec 82 p 4]

CSO: 5000/65

## CLOUD-SEEDING OPERATION DESCRIBED

Harare THE SUNDAY MAIL in English 12 Dec 82 p 11

[Article by Michelle Faul]

[Text]

IT'S not magic and it can't work miracles, but cloud seeding by modern "rainmakers" yielded more than 370 million tonnes of rain in the 1981-82 season.

And that's the equivalent of \$5 million worth of water pumped on irrigation, reckons the co-ordinator of the National Cloud Seeding Operation, Mr Jeffrey Stevens.

"Cloud seeding has got its limitations. Some people think it's magic and that it can work miracles, which is not correct.

"And some people are very sceptical and think it doesn't work at all, and that's not correct either," he said last week.

Seeding clouds, a technology developed in America 36 years ago, was first tried experimentally in Zimbabwe in 1968 in a panic following the bad drought of the year before. "Within five years of the discovery of the technology, there were lots of small private firms in the States claiming to do cloud seeding.

"Some were good and some were not so good and there were many conflicting claims. Many people thought false claims were being made," Mr Stevens explained.

"We had reason to believe, among other things, that clouds had to blow up like cauliflowers when they reached 6.4 km high.

"So the research aircraft would approach a cloud and decide whether it was suitable for seeding.

"If it was, they ripped open a sealed envelope and some of the envelopes said 'seed' and some said 'leave alone'. In either case the researchers would take its measurements."

So data has been collected over the years and they now estimate that the average yield of a seeding is 140 000 tonnes of rain.

That's the equivalent of an extra 10 mm of rain over 14 km<sup>2</sup>.

In the last season NACSO seeded a record 3 006 clouds with the three aircraft it charters — two based in Harare and one in Bulawayo.

So why do we still get droughts?

Mr Stevens, with hands gesticulating and eyes closed, fondly describes clouds and their workings rather like an indulgent parent talking about a child.

"On far too many days in this country we have lovely clouds that build up in the sky like cauliflowers and everybody thinks it's going to rain, but it doesn't," he explained.

"At the end of the af-

termoon it starts to dissipate and by early evening you have a clear sky.

"Those large billowing clouds probably had about 25 mm of water just poised to drop and nothing happened to make them do so.

"But on other days we see these clouds and it does rain. There's a reason for all this," he said.

"Clouds are made up of tiny, tiny droplets of water so small that it takes one million of them to form a raindrop the size of a grain of rice, which is therefore big enough to fall.

"But all those little droplets of water just float because they are too small to fall."

The droplets go up to the top of the cloud to freezing level of 0 deg C at a height of 6.4 km.

As the cloud goes higher and it gets colder, the droplets do not freeze, even though it is below freezing point, and they will not unless a little nucleus makes them.

"In nature that nucleus is probably a tiny dust particle. If there are enough particles and enough of those droplets to freeze, then you will have an ice crystal forming.

"Once you have that, it grows immediately to perhaps a diameter of 5 mm and becomes big enough to fall as a hailstone or snowflake," Mr Stevens said.

The cloud seeders use silver iodide crystals, which are almost the same size and shape as a tiny ice crystal, to imitate nature's nucleus.

"The gunners, as they are called, sit in the back of the plane and fire a couple of ammunition boxes of cartridges into the cloud.

"The cartridges, which look rather like a signal flare, are full of the crystals and chemicals rich in oxygen," he said.

They have to be imported and cost about \$14 each.

"You are actually buying silver, which comes

from used photographic film, and the main source for this is Hollywood," Mr Stevens explained.

The rising price of silver and oil to fuel the planes has hiked the operation's budget from a modest \$20 000 when it was set up in 1973, to \$226 000 for the last season.

But with 88 percent of the seedings successful, it's not a bad price for \$3 million of water.

Unfortunately, not all clouds can be seeded. They have to reach a height of 6.4 km, with a temperature below freezing and must be growing and cauliflower-shaped.

The seeders get their information on likely clouds from radar, which can show the height of a cloud, from briefings by the meteorological office forecasters and occasionally from pilots.

So the gunners cannot always answer SOB calls from farmers who say: "If you could just seed a cloud that's over my farm, it would be worth \$1 000."

There are many days in the seeding season of November to April when the aircraft and gunners are "grounded" because there are no suitable clouds.

In the 1980-81 season, the planes went out for only 56 of the possible 151 days. But the last season was better, with 85 flying days out of 151.

Mr Stevens said tobacco farmers like seeding because it seems to cause less hail, and they say that's the reason for the drop in their insurance claims.

It's not possible, as some people believe, for a cloud seeded in Zimbabwe to go scurrying away into a neighbouring country and rob our farmers of their rain, he said.

"The clouds just don't move fast enough," he explained. "They drift at perhaps 15 km/h and the life cycle of the cloud, once rain has started, is no more than 90 minutes so there's no danger of that."

## BRIEFS

DAM DRIES UP--THE Mudzi-Mutoko District Council is ferrying water in two bowers daily from Suskwe to the Chisvo Dam area, in Mudzi, which is facing a serious shortage of water, the District Administrator, Cde Thomas Mungate, has said. Speaking to the Herald on Tuesday, Cde Mungate said Chisvo Dam, which was the only source of water in the area, had dried up and the drought relief exercise had been continuing for three weeks. On development projects in the area, he said the District Development Fund had so far gravelled 90 km of roads and was aiming to cover 131 km by July next year. Nineteen boreholes had also been repaired in Mudzi. Cde Mungate said four upper-tops had been completed in Mutoko and three in Mudzi and they would start operating at the beginning of the term, in 1983. All the schools had been built by the local people as part of their self-help programmes. Also under self-reliance programmes, three clinics had been built at Makaha, Masarakufa and Kawere. At Masarakufa, the clinic was built with the assistance of DAPP. He said his council was keeping up with all targets it had set itself. "All we now need is electricity at Mutoko centre. People who wish to set up industries here are being turned away by the lack of electricity. There is a man who had proposed to establish a limestone crushing and packing industry but could not do it without electricity." Cde Mungate said since his districts were vegetable and fruit producers they needed a canning industry. Some of the fruit went bad before it reached the main cities. [Text] [Harare THE HERALD in English 16 Dec 82 p 5]

DROUGHT TOLL--Harare--Hopes of a better agricultural season are fading fast in Zimbabwe as drought continues to play havoc with both livestock and crops. The Department of Agricultural, Technical and Research Services (Agritex) paints a gloomy picture. In a fortnightly report for the period ended last Friday, it said crops were generally well past permanent wilting point and were either dead, dying or losing potential yield. Some farmers had not even planted and replanting had been done on a large scale. Tobacco was scorching and flowering early, with quality already affected. The livestock condition had worsened, with many deaths reported in the south and west. "Some cattle are very thin and will be soon unable to walk to water," said the department. "Grazing in many areas is wilted or dead altogether, and lacking in bulk, even in the better areas." Water supplies were now becoming critical, with many reports of dams at low levels, boreholes and wells failing and streams running dry. Only isolated light and ineffective showers had occurred over most of the country and the situation had deteriorated markedly. Temperatures had been extremely high and evaporation figures were 24 percent above normal in some cases.--Sapa [Text] [Johannesburg THE CITIZEN in English 13 Jan 83 p 8]

# ROLE OF SOVIET ARMED FORCES IN CONSERVATION DESCRIBED

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 20, Oct 82 pp 81-84

[Article by Colonel of military justice S. Morozov: "Wars of Environmental Protection"]

[Excerpts] The Soviet Army and Navy in the administrations of the type of USSR Armed Forces, main and central administrations of the Ministry of Defense, in the districts and fleets have created groups which are functioning for environmental protection, and inspections have been set up in the Main Apartment-Operational Administration of the Department of Defense. Measures have been defined for protection of nature and the efficient use of natural resources which must be fulfilled by the military units, institutions, military-educational institutions, enterprises and organizations of the Ministry of Defense, and basic duties and rights of the groups and inspections have been set up.

These measures include protection and efficient use of water and forest resources, land, protection of the air basin and the animal world.

The groups check the military units on questions of environmental protection and efficient use of natural resource, during the checks they obtain necessary material and information, and require that the commanders of the military units eliminate the detected shortcomings. They have the right to require timely presentation by the military units of the corresponding report, and in necessary cases, to make suggestions to the leaders of the enterprises and organization of the Ministry of Defense whose activity violates the legislature on environmental protection, standards and rules for the use of natural resources, to halt the operation of these enterprises and organizations until the necessary measures are taken.

The bulk plants, warehouses of fuel and lubricants, the truck fleet, the stations for maintenance of equipment, as well as the boiler houses on liquid fuel are equipped with resources for collecting and treating waste water and oil-containing production waste.

The water supply and sewage systems are given preventive maintenance and should be equipped with control and measurement instruments. Biological and physical-chemical laboratory analyses are made to calculate the consumed and discharged water according to quantitative and qualitative indicators.

The groups develop drafts of orders, directives, instructions and other guiding standard and method documents on questions of environmental protection and the efficient use of natural resources.

They plan environmental protection measures and monitor their fulfillment, participate in the development of long-term and current plans for design and major construction of environmental protection facilities, and monitor their implementation.

These groups are obliged to perform control functions over the fulfillment by the military units of the assignments for environmental protection and efficient use of natural resources set by the state plans for economic and social development of the USSR, as well as fulfillment by the enterprises and organizations of the Ministry of Defense of measures for introduction of progressive technology which guarantees the maximum decrease in the adverse effect on the environment of emissions and wastes of production.

They have been given the obligation to monitor the observance of the rules for technical operation of environmental protection facilities, organization of accounting for the use of natural resources, generalization and analysis of the report data and presentation of them in the established order to the leadership of the Ministry of Defense, ministries and departments of the USSR who are implementing state control over environmental protection. It is also important to stress that the groups must interact with the local agencies of other ministries and departments of the USSR who are implementing state control over environmental protection.

The inspection for environmental protection organizes and verifies the activity of the groups for environmental protection.

The military units create commissions and appoint officials who are responsible for the environmental protection work.

When we are concerned, say, with protection and efficient use of water resources, then primary attention is focused on strict observance by all the soldiers of the standards of water use, for closed and circulating water systems, including at stations for washing military and other equipment.

The ships and other floating vessels of the Navy are equipped with containers and separators for intake and purification of oil-containing and communal general water. Attention is focused on construction of shore stations for purifying oil-containing and communal general water taken from the ship and other floating vessels.

The direct duty of each soldier is to constantly make a specific contribution to the national work of environmental protection. It is important for each soldier to correctly use the combat mechanisms and equipment entrusted to him, to prudently use the fuel and lubricants, to be concerned over the cleanliness of the environment, and to keep his weapons in correct operation and to use them competently.

In improving the field, air and sea training, the soldiers must constantly be concerned about protection of fields, forests and the animal world, maintenance of high cleanliness of the air and sea space, lakes, rivers and artificial reservoirs.

The soldiers participating in construction of the eastern section of the Baykal-Amur Trunkline are making a significant contribution to implementation of the party decisions. They are building the greatest railroad trunkline under taiga conditions. Their task is to preserve to the maximum the natural resources, not to permit unnecessary losses of forest, to prevent the death of animals, and to preserve their migratory paths.

One should also talk about the soldiers who in the truck subdivisions help the agricultural workers to collect the harvest. These soldiers are performing work of great state importance, they are making a perceptible contribution to the fulfillment of the USSR food program adopted at the May (1982) CPSU Central Committee Plenum by their selfless labor. Active participation of the soldiers in the struggle against losses, and the skillful maintenance of trucks are the most effective measures adopted during harvesting time.

The military builders can make a great contribution to environmental protection. Each of them should primarily make efficient use of the depths during extraction of natural construction materials, sand, gravel, crushed rocks, etc., and also make economical use of these materials directly in the construction of different facilities.

Correct actions in those military units and on ships where questions of preserving the environment are included in the socialist commitments of the soldiers and the reality of their fulfillment are considered in summarizing the results of socialist competition. The decree of the CPSU Central Committee "60th Anniversary of Formation of Union of Soviet Socialist Republic" indicates the need to persistently increase the level of the entire competition organization.

I would like to express yet another thought. The legislature on environmental protection is extensive, and it should be continually and successively clarified, revealing its essence, and showing the place and role of each soldier in the unconditional fulfillment of the law. The propagandists and military lawyers are called upon here to make their weighty contribution. Daily explanatory-legal work on environmental protection is needed.

Environmental protection is a national work, and each soldier is called upon to make his contribution. The vital activity of our state, and growth in the welfare of the Soviet people depend a lot on how man's environment is protected.

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CSO: 5000/26

# RESEARCH IN CLEANSING SEA WATER OF PETROLEUM SPILLS

Moscow VODNYY TRANSPORT in Russian 1 Jul 82 p 4

[Article by Ye. Panyukno: "A Favorite Delicacy -- Petroleum"]

[Text] Petroleum in the sea . . . a threatening disaster of our day. It is conveyed by the waves over thousands of miles from the place of discharge, and covers an immense area of water with a dull film, causing irreparable damage to the animal world of the depths of the sea. How does one fight against petroleum pollution of the world's ocean?

Scientists throughout the world are working on this problem. Special petroleum collection ships have been created. But regardless of how well this may work, the ominous oily film continues to shine cheerfully on the waves. Can it be eliminated?

"It can be!" they answered in the Sevastopol Institute of Biology of the Southern Seas of the Ukrainian Academy of Sciences.

White gauze sacks with clumps of tar floated in the immense aquarium with circulating water. They quivered when they came under the stream and it seemed that black clumps melted before your eyes . . . .

A most interesting experiment on breaking down heavy petroleum fractions was being conducted in the institute's laboratory. Contained in the gauze sacks were those same clots of petroleum which the sea frequently throws up on the shore and then throws it back again from the shore . . . . How long can these clots last? And what can completely break them down? This problem was set several years ago for a group of Sevastopol scientists under the leadership of O. G. Mironov, doctor of biological sciences and professor at the institute.

"Petroleum has ended up in the ocean even before man appeared on the earth. But everything in nature was in balance until man intervened," Oleg Glebovich said then. "This means that the sea has so-called mechanisms for processing petroleum elements. Our goal is to find them, to study them and to utilize them where the natural process has been violated."



It was necessary to search for them a long time. Science ships have gone out on long trips to search for them. Specimens have been taken from many regions of the world ocean. Soon surprising "guests" appeared in the institute --from the cold polar seas and from the equatorial Atlantic, from the Pacific Ocean and from the Mediterranean Sea . . . . They were all joined together by one thing: they turned out to be terrible gluttons, and their favorite delicacy was petroleum . . . .

They showed me two test tubes. In one was a brown liquid, and in the other a transparent, almost colorless liquid. And recently there was petroleum and water in both test tubes. But in one of the test tubes they placed sea guests with greedy petroleum appetites--cultures of microorganisms.

"Now look there," Oleg Glebovich led me to two large reservoirs containing sea water. Here the microbes were eating diesel fuel. In one the rough colored spot of solar oil was larger, and in the other it was smaller. The experiments were started at various times in various containers. Unfortunately I did not manage to see the complete disappearance of the spot. Even for these microbes petroleum is a heavy food: it cannot be eaten in one sitting.

With these laboratory facilities the workers of the institute have studied for several years the behavior of the microbes and the conditions that influence their growth and life activity. Some microbes turned out to be heat loving while others, conversely, loved the cold. It was necessary to know all this in order to create an experimental industrial installation for the hydrobiological method of purifying ballast water which was recently constructed in Sheskharis near Novorossiysk. The largest fleet in the country--the tanker fleet--is based here. Therefore the probability of the penetration of petroleum into the sea is greatest here. The new installation was to impede this.

Along with workers of the Institute of Biology of the Southern Seas, specialists from the Black Sea Administration of Main Petroleum Lines of the Ministry of the Petroleum Industry participated in its construction. This purification complex is now undergoing testing.

The tanker delivered the petroleum. It was not easy for it to return and therefore it gathered water for ballast. In the port, where it returned for petroleum, the tanker discharges the water. The laboratory analysis showed that up to 1 percent of petroleum was dissolved in this water. To discharge it into the sea is a double crime: costly raw material is thrown away and the water area is polluted. Therefore the water with the petroleum emulsion is initially put through the purification installation. But still in the purified water there were up to 50 milligrams of petroleum dissolved in each liter of water. The biologists think that this concentration is fairly high and destructive to many sea organisms. Microbes help to break down the remaining petroleum.

Externally the hydrobiological installation is three immense reservoirs. Microorganisms have been planted in the central one. Tirelessly, day and night they eat and eat and eat . . . . And after their processing the ballast water becomes practically pure.

"And soon the water will be completely pure," says Mironov. "We are now working on creating a second section of the purification complex. This time our helpers will be mussels."

It was noted long ago that these mollusks are excellent filters.

With the help of special devices that remind one of dams, the mollusks are fastened to thin threads and dropped into the sea where the ballast water, already purified by microbes, is discharged. Several of these unique sloping homes will be "constructed" in the water area. Now it is your turn, mussels!

The Sevastopol scientists have found a very interesting method of purifying sea water of petroleum pollution. So far they have taken the first steps in its application. Before them lies long, painstaking, but rewarding work.

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CSO: 5000/0022

CDU'S ATTITUDE TO ENVIRONMENTAL PROTECTION SCORED

Hamburg DIE ZEIT in German 12 Nov 82 p 14

[Article by Joachim Nawrocki: "Noncommitment by Zimmermann; Is the New Federal Government Serious Enough About Environmental Policy?"]

[Text] In Helmut Kohl's government declaration, in the debate about it, in the subsequent interviews and statements by members of the new government, one subject was badly neglected which is no less important to the future of humanity than defense and peace policy: environmental protection. At the end of October the Bundestag then discussed the Global 2000 environmental report, which former U.S. President Carter had commissioned and about which it is aptly said that it is a "scientific apocalypse." The debate took place full of commitment, in front of a half-empty assembly and 2 years too late. Global 2000 was delivered to Carter and made public as early as July 1980.

During this debate the Federal Government, primarily Interior Minister Zimmermann, who is responsible, would at least have had the chance to make more than just general declarations about the "worldwide importance and need to solve" the problems discussed. This opportunity was scarcely utilized, and the reference by Zimmermann that he has only been in office for a few weeks, after all, is not a sufficient explanation. Many concrete issues were thus left open, and many doubts were not eliminated.

Nevertheless, the debate was not useless. Once more it pointed up the abundance of worldwide environmental problems. The next Bundestag, delegate Sauter (CDU) said, must concern itself more with these problems than up to now; but why only the next one? It also became clear that even a model environmental policy in an individual country--but it is not a model policy--is of little use unless joint efforts by all nations are achieved. The earth's ecosystem knows no boundaries. Unrestrained cutting of tropical rain forests will influence our climate as well. Acid rain damages forests and lakes far away from all industrial areas.

"We must think globally and act locally," says Minister Zimmermann. But we must also bring about the achievement of global actions. It was justly commented in the Bundestag that all kinds of economic summit meetings, monetary policy summits, food policy summits, North-South conferences and UN congresses are held, but that negotiations about the maintenance and security of the foundations of our standard of living are at most skirting the subject.

Global 2000 makes for very disturbing reading. The tendencies which are pointed out are unchallenged.

"If the present development trends continue," the authors of Global 2000 write, "the world of the year 2000 will be even more overpopulated, more polluted and even less stable ecologically and more susceptible to disturbances than the world in which we live today." Timber supplies are predicted to drop by 50 percent per capita. By the year 2000 about 40 percent of the tropical rain forests still in existence today will be polluted. As a result of erosion, loss of organic materials, desert expansion, salination, alkalization and conversion to swampland, a worldwide deterioration of usable agricultural area will take place. Even now, an agriculturally usable area the size of Bavaria turns to wasteland each year. The concentration of carbon dioxide and ozone-depleting chemicals in the atmosphere will presumably increase to such an extent that the earth's climate and upper atmosphere will undergo a decisive change by the year 2050.

#### Ignored Prognoses

The prognoses will be confirmed unless action is taken. It is all the more serious that the report got lost in the government's desk drawers in precisely the country where it originated. There is scarcely any environmental protection any more in the United States; the responsible authority has been stripped of its power. Are conservative governments generally less sensitive to such concerns? Do they believe that a free economy in a free world would come to grips with these problems all by itself?

In the opinion of a seasoned CDU politician who makes pertinent observations, the new chancellor is perhaps more responsive to environmental protection than his predecessor; he is also accessible, but the question is: Who goes to see him? The CDU/CSU has prominent environmental politicians, primarily in some federal Laender where they are also in charge of the government, but fewer in the Bundestag.

The coalition document of the CDU/CSU and the FDP contains nothing more about environmental protection than the statement, that the revision of the Technical Guideline for Conservation of the Air (TA Luft) is to be "continued according to plans"--this is under "Miscellaneous." In Helmut Kohl's government declaration it says: "I ask all citizens to use the treasures of our nature, soil, water and air with care. We accept the challenge of maintaining the wealth of our flora and fauna. In so doing we rely particularly on the cooperation of our agriculture. The successes up to now of our environmental policy are due to the cooperation of all parties represented in the Bundestag. We want to reinforce this cooperation."

All that is somewhat scant. It will not be possible to solve the problems with requests and confidence, because in environmental protection, unlike in the theory of market economy, the interest of the individual does not simultaneously benefit the general welfare; on the contrary. Otherwise the destruction of the landscape, the damaging of the soil, air and water, would not have progressed so far.

Even the CDU's environmental program of December 1979--an otherwise thorough and expert study--shows such tendencies. The environmental problem, it says there, "is better solved by the economy with as much market as possible than through constantly new bureaucratic interference." That only makes sense if it means that he who causes environmental damage will also be charged with the cost of repairing it. Then, but only then, will environmentally damaging products disappear from the market, and only then will economic necessity force the use of environmentally safe technology. But it would be wrong to hope that the market will solve the problems by itself, because "ecological business practices pay off economically as well." It pays for the national economy and for society, but--without state intervention--not for the one who causes the environmental damage. For him it is always cheaper simply to drain the waste into the water or blow it into the air.

To be sure, the new interior minister never tires of declaring that continuity will be preserved in environmental policy. "He who believes that environmental protection will be turned back is wrong. Environmental protection is not a superfluous investment obstacle, which is at our disposal." But he also contradicts himself. In SPIEGEL he replied with an unqualified "yes" to the question of whether jobs could be created and not eliminated through environmental protection. In WELT Zimmermann stated: "However, excessive environmental regulations are not compatible with the primary goal of reducing the number of unemployed." What is excessive? Did Zimmermann's predecessor Gerhart Baum go too far, as not only the affected industries but Economics Minister Lambsdorff as well maintained?

It is conspicuous how many questions Zimmermann left open in the Bundestag debate. Did the minister fire the head of the environmental department of the Ministry of the Interior, Peter Menke-Glueckert, with the motivation that he does "not at all agree with" his environmental policy? Zimmermann denies this; Menke-Glueckert, on the other hand, confirms it. Zimmermann was asked in the Bundestag: "Do you, for your part, have a concept which indicates what measures you believe have priority on the national level, on the EC level and on the level of the UN?" No reply. He was asked whether the originator principle still has priority for the new Federal Government. The Federal Government was asked for information whether an additional DM 600 million for the continued construction of the reactors in Kalkar and Schmehausen would be granted at the expense of support for environmental and climatological research. It was asked whether the limits for sulfur dioxide emissions, already controversial in the old cabinet, will be lowered in the draft of the regulations governing large-scale combustion installations. All of this remained unanswered.

Instead, Minister Zimmermann replied to criticism of continued construction on the controversial Rhine-Main-Danube Canal, that he is not communications minister, and that one should "not so arrogantly ignore the wishes of those affected;" moreover, where the canal has already been completed the Altnuehltal is even more beautiful than before. And he says: "The competition in the international markets requires the harmonization of efforts in the area of environmental protection." What does that mean? Is environmental protection at home only allowed to go as far as it does outside our borders, so that

German products will not be subject to cost increases and remain competitive? That would surely be wrong. On the contrary, we must try to move foreign competition toward more environmental protection; if they are not prepared to, this does not produce an alibi for failing to do so in our own country. Furthermore, the costs of environmental protection are greatly overestimated; the decisive factor for international competition is labor cost.

#### In Favor of a New Ministry

All of this shows at least one thing: Environmental protection is a fifth wheel at the Interior Ministry; the priorities are public service, domestic security, constitution and border defense. Neither the minister nor his state secretaries have previously appeared as committed environmentalists. Expert CSU/CSU Bundestag member Heinz Riesenhuber is now minister for research and technology and has other concerns. If the government takes environmental protection as seriously as it says, it should really create a ministry of its own for it, if necessary in combination with urban and regional planning. The suggestion by Helga Schuchardt to create some kind of "minister for the future" with veto power over activities which damage the future and also a planning capacity for studying trends and causes for environmental damage, is at least worth considering.

The environmental policies of the coming years should overlap the departments and must not be encumbered by lobbyism, egotism, prestige and competitive thinking. It must conduct research into the causes more forcefully than previously, but may not wait with protective measures until the reasons for the damage have been proved, such as for example with the dying forests; compelling suspicion should suffice.

For this reason it is also overly superficial when the government states that industry needs clear data, planning security and reliable predetermined goals. The state of technology changes, and environmental legislation must constantly be adjusted to it. The CDU's environmental program quite correctly says about this, that shaping the environment is "a task which presents itself under constantly new forms--with the progress of technology and with the growing understanding of potential endangering."

The development of environmental protection technology, but also of production technologies which treat the environment with consideration, should be promoted in every way. This helps not only the German economy and in addition its export capability. It also helps other countries to protect our joint living space. In this respect the industrial nations have a "service-rendering function," as Minister Riesenhuber says. Credits should be granted with priority to the export of environmental technology. If the smelly power plants and chemical enterprises of the GDR were to receive filtering and stack gas desulfurization installations on credit, this would be at least as sensible an investment as the construction of the Autobahn from Berlin to Hamburg.

A program to protect the environment, to save energy and to develop an environmental technology capable of being exported could definitely result in

an investment and innovation incentive, which contributes to the solution of the economic and labor market problems. This recognition is gradually making itself felt. But action also has to result from it. There is little reason for self-satisfaction as long as environmental protection organizations have good reason to demand an emergency program to rescue the forests. People are becoming increasingly perceptive. This is also noticeable in elections. The former government parties FDP and SPD had to accept devastating election losses in the area surrounding Runway West in Frankfurt. If the Federal, Land and local governments do not act more energetically, the ecological parties will win even more votes despite their single-minded views. Then the country could become ungovernable, even before it becomes uninhabitable.

11949

CSO: 5000/2521

POLLUTION PREVENTION PRESIDENT URGES MORE INVESTMENT

Paris LE MONDE in French 27 Nov 82 pp 32-33

[Interview with Pollution Prevention President Thierry Chambolle; time, location and author of interview not specified]

[Text] [Question] Of the three departments under the Environment Ministry (the other two being protection of nature and the quality of life), the management of pollution prevention has obtained the most measurable results over the last ten years. However, much remains to be done, even in the area of water, where the efforts have been the most massive and of the longest duration. The day when our rivers will become clear again seems ever more remote, like a mirage. Mr Thierry Chambolle, how do you explain that?

[Answer] Periodic assessments of the water quality indicate definite, measurable progress. Local communities today are equipped to purify 60 percent of their discharge. But because of a lack of sewer connections at the stations, only one third of the liquid waste pollution is being treated. Seventy percent of the substances in suspension, one half of the oxidizable substances and toxic products released by industry are no longer going into the rivers. So we have attained one third of our objectives for the settled areas. These objectives, which consist of purifying all of the urban sewage, will only be attained at the end of the century if we maintain the pace of building purification stations and if we appreciably improve the sewer systems. Many of the metropolitan centers, such as Marseilles and Strasbourg, are still to be equipped. Local communities are currently investing 4 billion francs per year in decontamination and purification. It isn't enough. It should be 6 billion.

As for the factories, we have gone more than half way, but it would be good to maintain the present effort at the rate of 1 billion in annual investment. All things considered, France will only achieve good quality waterways by devoting over 100 billion in investments for that purpose between now and the end of the century.

[Question] France was believed to be properly supplied with drinking water. But too many communities are still distributing water that is dubious because it contains either germs or nitrates. Why? Who is responsible?



[Answer] The Ministry of the Environment, which ensures interministerial co-ordination in the area of water, is concerned, but so is the Ministry of Health and of course the city governments. Bacterial pollution occurs either because surveillance of the distribution systems is poor, or because the catchment areas aren't protected. There are 30,000 catchment areas in France, but only 3,000 of them are surrounded by a protection zone, that is to say a perimeter zone on which construction and dumping of any products are forbidden, and on which livestock raising and cultivation of crops may be subject to restriction. Since 1967 it has been the obligation of city governments to create these protection perimeters, but the laws are inadequately enforced. Why? Because you have to get a geologist to intervene, organize a public investigation and finally limit agricultural activities. Our objective, which is a modest one, consists of creating 1,000 protection perimeters per year, but that figure has yet to be reached. You can see that, there too, it will take time.

[Question] The growing pollution of the underground sheets of water by nitrates seems to be irreversible and uncontrolled. What do you expect to do?

[Answer] One pollution may actually be hidden by another kind. Thus, nitrates and phosphates, to which hardly any attention was being paid, today have taken first place in our concerns. Pollution by nitrates is widespread, it extends to the whole territory, it is tied to agriculture.

A working group was created among the Ministries of Agriculture and the Environment and agricultural representatives. The latter--and this is important--now recognize, for the most part, that they are responsible for this pollution. They and we are pursuing a common goal, to prevent nitrogen from penetrating into the water sheets, which is both wasteful and polluting. So the farmers have to be persuaded to take more care in measuring out the fertilizer that they throw on the soil and to practice suitable growing methods. Research is going on; credits for it must be doubled from the present 10 million francs per year. Next, on areas of several hundred hectares in Ile-de-France, in the Center and in Alsace, they are experimenting with rational agriculture. Finally, the agricultural warning services are trying to awaken the farmers to their responsibilities. There is still another action to be conducted over the next decades. To "cover the distance" we plan to create a permanent secretariat to combat nitrates, which would employ 10 persons and could be installed at Rennes near the INRA [National Institute for Economic Research] laboratories, which are already working on this question. To finance these activities, the basin agencies are now receiving a new tax on nitrogen and phosphorous discharges from communes and factories.

[Question] Why a tax on phosphates?

[Answer] Because they pollute rivers and lakes by eutrophizing them. In water that is too rich in phosphates, algae proliferate. The situation in France is not good. At half of the places analyzed the maximum norms authorized by a European directive have been exceeded. In Germany, the washing powder manufacturers are already being held to reducing the phosphate content of their products by 50 percent. We are negotiating along the same lines with the French manufacturers.

[Question] For 10 years the salt pouring into the Rhine has been poisoning European relations as well as the river lands. Are we finally going to emerge from that situation?

[Answer] Salt discharge into the Rhine is divided 50-50 between France and Germany. Would we have been right to agree in the beginning to be the only culprits? In any case, we are proposing to our partners that 700,000 tons be injected each year into the Alsatian subsoil and that a 300,000-ton-per-year salt works be established. But the reservations of the Lorrainians about the salt works and those of the Alsatian elected representatives about injection are well known. Two reports have been requested from experts: one to evaluate the profitability of the salt works, that one we will have in a few days; the other to evaluate the dangers of injection. The experts conclude that the risks of pollution are low and easily controllable by stopping the injections. For the two sites under consideration, they are asking for additional studies, which the government has decided to do.

[Question] Here we are, back at square one. There again, one gets the impression that it will take decades to find a solution. Let's talk about atmospheric pollution. Several days ago, in Paris, the eyes smarted and the chest burned. What was responsible was sulfur oxide, the famous SO<sub>2</sub> emitted by the power plants and domestic heaters. Where does this situation stand in 1982?

[Answer] Paris' alert system won't really be operational until next winter. The apparatuses for registering pollution are in places, the central station has just been opened, but it will take time to bring together meteorologic data capable of providing a base for prediction. Then the prefect has to issue an order commanding manufacturers, especially EDF [French Electric Power Company] installations, to reduce their emissions when there is an alert. A complete system exists only in the Rouen-Le Havre region. One is in the process of being put in place at Marseilles-Fos.

Having said that, the dust and sulfur oxide content of the air has been diminishing in most cities in France for the last 10 years. There is no longer any settlement that exceeds, on the annual average, the 100 micrograms of SO<sub>2</sub> per cubic meter of air. The goal is to arrive at 60 micrograms. A recent inventory tells us, however, that half of the population living in areas where systems for measuring atmospheric pollution exist, or 6 million Frenchmen, are breathing air that on some days does not conform to the European standards. We are launching a more precise count, and we are asking the commissioners of the Republic to take the necessary measures in their departments to observe the European directive: use of fuels with low sulfur content, desulfurization, etc.

We are also concerned about the pollution of the air in settled areas by the gases escaping from automobiles: nitrogen oxide, carbon monoxide and hydrocarbons. Professor Roussel and four of his physician colleagues are to hand in a report before the end of the year on the impact of such pollution on the health of the city dwellers.

We think that in a number of places the air of our neighborhoods does not conform to the recommendations of WHO, especially as concerns lead. But before launching a new, more energetic policy, we want to give it a medical basis, considering the importance of the automobile industry for employment.

[Question] This same timidity is to be found in the fight against noise. It seems that out of fear of making the builders discontented, the idea of making the engines quieter has been given up. They have chosen instead to isolate the receiver, that is to say, man. Isn't that burying one's head in the sand?

[Answer] We haven't given up reducing noise at the source, but we can certainly see that such an action has limits. For 10 years they have been soundproofing worksite machinery. Peugeot and Motobecane are perfecting an exhaust pipe that can't be dismantled and which diminishes motorcycle din, which will be compulsory in 1984. Renault is studying a 15-ton truck that will be less noisy than the present vehicles, to be used experimentally by the PTT [Post, Telegraph and Telephone] in 1984. But to lower the noise from all trucks from the present 88 decibels to 80 decibels will take lengthy research and an international agreement. Moreover, it is indispensable that the competitiveness of the French automobile industry be maintained. Replacement of all the present fleets will take 20 years.

Even by also softening the noise from individual automobiles, by changing the surface of the roadways and reducing the speed of vehicles in the city, you will obtain only limited results. Toward the year 2000 one might hope that the average noise level along the street fronts will not exceed 65 decibels. You can see that we will still be far from the 35 decibels that we hope for in housing quarters, especially in bedrooms.

So you have to isolate the housing too. This has been done as far as interior noise is concerned, since 1975 in all new apartments. A 1978 law allows it to be done on the front of new apartment buildings situated on a noisy road, but this measure is just beginning to be enforced. We are also in the process of taking a census of the problem spots, that is to say the old apartment buildings that are poorly isolated and badly located. To deal with them systematically will require a lot of time and a lot of money. One example: to provide relative calm to the areas bordering on a suburban boulevard near Paris, only 25 km, the cost is climbing to 600 million francs.

[Question] Are you optimistic?

[Answer] I am not pessimistic, for several reasons: first of all, we are thoroughly mastering the techniques of depollution and we are assured of making even more progress with the proper technologies in particular. Then, we have competing business firms at our disposal, which are asking only to work. Finally, the French people are aware of the need to accomplish this work in order to recapture the natural environment. Recent polls have shown us that. Therefore we think that an increasing share of public investment will be directed toward this work in favor of the environment, which means water, air or noise.

8946

CSO: 5000/2530

## NUMBER OF EMPLOYEES, AMOUNT SPENT ON ANTIPOLLUTION MEASURES

Paris LE MONDE in French 27 Nov 82 p 34

[Text] This year the government, local communities and individuals have spent 52 billion francs to protect their environment: water conveyance, purification, prevention of pollution and nuisances, protection of the natural patrimony, improving the everyday surroundings. This represents 1.1 percent of the gross national product and, for each citizen, an outlay of 1,000 francs. Of these 1,000 francs, 700 pass through the financial channels of the state, the departments, the districts and the public organisms, 150 through the hands of the industrialists. One hundred and fifty francs are spent directly by the households themselves.

Half of these expenditures go to the distribution, decontamination and purification of water. Local communities devote to it 10 to 11 billion francs per year. Collecting and eliminating wastes costs 8 billion francs, improving the surroundings 7 billion francs, preventing air pollution 2.1 billion francs and noise prevention 2 billion francs.

The business firms linked to the environment, which realize 35 to 40 billion francs in turnover, are the principal beneficiaries of this manna. Of the 370,000 "environment" jobs, they occupy 295,000.

These numbers were divided as follows in 1981: conveying and distributing drinking water, 80,000 persons; collection and treatment of liquid waste by local communities, 58,000 persons (27,800 for developing existing installations, 30,800 for manufacturing materials and new projects); industrial liquid waste, 9,700 persons; noise prevention, 38,500 (including 24,650 for internal isolation of premises and 13,850 for manufacture and installation of partitions and screens); collection and treatment of household refuse, 44,000 jobs; solid wastes of industry, 13,400; recycling, 51,000.

According to the specialists, the possibilities for creating non-budgetary jobs in this branch of activities are still limited. Businesses have hired labor to capacity and sometimes beyond. Progress should be made instead by raising their productivity.

Despite lively foreign competition, the antipollution industries are exporting. Study and development of purification systems returns about 3 billion francs



Key:

1. Toxic wastes and their treatment.
  2. Remote dump.
  3. Controlled discharge.
  4. Treatment center.
  5. Cement plant burning wastes.
  6. Treatment of oils.
7. Source: Ministry of the Environment, January 1982.

to our foreign balance and equipment leaves a positive trade balance of 200 million francs.

With regard to environment-connected activities, the economic situation is a gloomy one. There are several reasons: lower public funds in constant francs, generally lower industrial investment, an exportation slowdown, the lifelessness of the construction industry, affecting phonic and thermal isolation work.

Decentralization is further increasing the climate of uncertainty, for no one knows what financial efforts will be undertaken by local communities in favor of the environment. To obtain the objectives that were set in the field of water, air and noise, the expenditures made by the French people should increase at an

annual rate of 4.6 percent in the course of the Ninth Plan. Considering the inadequate margins of business firms and the meager resources of local communities, many doubt that such an increase is possible.

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\*[reference omitted from text] "Economic Data on the Environment," 1982. French Documentation, 44 pages, 40 francs.

## GARDANNE POWER PLANT SEEKS WAYS TO DESULFURIZE SMOKE

Paris LE MONDE in French 27 Nov 82 p 32

[Article by Jean Contrucci: "Bad Smoke at Gardanne: the Coal Company is Condemned to Being Inventive"]

[Excerpts] Faced with the obligation to desulfurize the smoke to be emitted in 1984 from one of the boilers--the group 5, 600-megawatt boiler--at the Gardanne power plant--, the Provence Coal Company is condemned to having imagination. It is examining a process, as yet unpublished in France, that could be applied to other thermal power stations.

Gardanne must supply electricity to the EDF [French Electric Power Company] by on-site burning of the coal extracted from a new 60 million-ton deposit. The plan drawn up in 1980 provided for an efficient dust removal system, but no desulfurization. A 300-meter smokestack was supposed to dilute the sulfur-laden gas. In addition, the future power station is to be surrounded by an alert network controlled by the industry's interdepartmental management. Pick-ups will continuously survey the condition of the atmosphere, and when there is any hint of pollution an order can be issued to stop the boilers temporarily or slow them down.

A public opinion campaign launched by the associations and supported by the elected representatives has placed the Provence Coal Board under an obligation to study and develop a desulfurization system. At the end of 1981 the government asked for a complete study of existing processes, to shed light on its options.

### A Five-percent Price Increase

"Gardanne coal," explains Jean Manhaval, chief engineer of the Coal Company, "is characterized by a strong sulfur content and that's what is posing the problem, but it is naturally loaded with calcium carbonate. Well, the smoke can be desulfurized with the calcium carbonate. At Gardanne, a third of the sulfur is believed to be eliminated naturally by the combustion of the coal itself. As for the calcium carbonate, we find it in the ashes that we sell afterwards to public works firms or cement plants. To augment the natural desulfurization, that is to say to capture the sulfur oxide at its point of origin in the boiler, why not inject lime at the moment of combustion?"

This is not a new idea. The United States and West Germany have been studying the technique for two years. But not France. But necessity knows no law. The Provence Coal Company has launched a research program in a Dutch laboratory that specializes in combustion, then in Gardanne itself in one of the boilers that are now stopped. Tests were performed in April and May 1982. They showed the most effective absorbent of sulfur oxide to be slaked lime, if it is injected around the burner of the boiler, and they showed the optimal combustion temperature to be 1200° C. How can you lower the temperature of a flame that is in the neighborhood of 1500° C.? New experiments showed that it was necessary to reinject the smoke in the combustion chamber in order to smother the flame. Tests and adjustments are continuing. In February 1983 a final campaign will be conducted before the results are published in April 1983.

The Provence Coal Company is devoting 6 million francs to the project. The output with this process is less than the output with the washing process. But improvement is hoped for. The objective is to obtain 30 percent of the desulfurization by natural combustion, and then to gain 15 to 20 percent by re-chilling the flame. In this way desulfurization rates bordering on 70 percent would be achieved, while three to five times less money would have been invested than for a classical process. The cost of developing this technological innovation would entail a mere five-percent increase in the price of a kilowatt hour.

8946

CSO: 5000/2529



## BRIEFS

FUEL SPILLED IN ILL--Several hundred cubic meters of fuel, which solidified on contact with the cold air, poured out during the night of Wednesday and Thursday in l'Ill, as the result of a leak in the oil pipeline that connects the Herrlisheim refinery with the Rhine port. The oil pipeline ruptured Wednesday evening up by the village of Kilstett, near Strasbourg. When the break was announced, water was injected into the oil pipeline from the terminal in the direction of the refinery, to reverse the flow of fuel. At the same time the pipeline's feeder, which is buried one meter underground, was stopped until the leak could be repaired. Yesterday morning the firemen who during the night had installed two dams, one on land and the other afloat, to stop the congealed layer, began to evacuate the fuel. It was lucky that the cold solidified the fuel, because the ground water of the Alsace plain is not very deep at that spot and the water tower that supplies the Kilstett commune is situated nearby. Only a few wild ducks, their wings sticky from the fuel, were victims, this time, of this black inland mini-flood. [Text] Paris L'HUMANITE in French 26 Nov 82 p 13] 8946

CSO: 5000/2530

PARLIAMENT BACKS STRONGER ENFORCEMENT OF ENVIRONMENTAL LAWS

Stockholm DAGENS NYHETER in Swedish 15 Dec 82 p 19

[Text] Strong reasons speak for a strengthening of the environmental controls and an extension of the periods of limitation for crimes against the environment. The Swedish parliament stated this last Tuesday and sponsored these demands in a Social Democratic Party motion.

The resolution by the parliament means a review of the environmental protection law.

According to the parliamentary resolution, a special service agency--Swedish Environmental Control, Inc.--can ease the tasks for local and regional authorities.

The government should also study damage responsibilities and consider starting a compensation fund, financed through fees from those companies included in the environmental protection law.

With 278 votes to 33, the parliament rejected a joint reservation by the Liberal Party and the Communist Left Party about the right to appeal by ideological associations.

When the new environmental law took effect, resolutions about an environmental protection penalty were one of its more important features. Now, a year and a half later, no one has had to pay--although several crimes against the environment have been exposed. The Environmental Protection Agency feels that the law should be improved.

SNV feels that the penalty does not work effectively and, at the environmental protection investigation, have argued that the law needs to be reviewed, according to the agency's newspaper ENVIRONMENTAL NEWS.

Three points must be met in order to collect the environmental protection penalty:

The company must have violated a dumping condition.

The company must have gained economically from this.

The dumping must have brought considerable damage to the environment.

The Environmental Protection Agency is the prosecutor and must request the penalty. The concession board for environmental protection decides on the penalty.

"It has been difficult to prove that important damage has taken place," says the assistant justice of appeal, Ulf Bjallas of the Environmental Protection Agency. "Thus a person committing a crime against the environment can make great profits and still keep the gain if 'only ordinary damage, that cannot be considered 'important damage' has occurred."

"Instead of 'important damage,' the law should read that the crime against the environment caused 'inconvenience of a not small extent.'"

The Environmental Protection Agency feels that everyone who makes a profit from excess dumping should pay an environmental protection penalty.

9843

CSO: 5000/2526

## BRIEFS

NATIONWIDE DUMP INVENTORY URGED--The Nature Conservation Board intends to propose a nationwide dump inventory to the government. One wants to find those dumps containing hazardous wastes. It is important to do this while knowledge about old dumps still exists in districts and County Government Boards. It is otherwise lost when officials retire or die. The task is to pinpoint those dumps that contain industrial waste, domestic waste, or a combination of both. Particular attention will be paid to chemical waste. Mainly, it will be a desk job within the County Government Boards, which the country's districts then shall complete with more documentation. The intention is also for the districts to interview industries, truckers, and others, so that the survey will be as complete as possible. The County Government Boards then will compile the information and organize the dumps into two groups, one that must be further investigated for possible environmental dangers, and one that is considered safe. Then it will be up to the Nature Conservation Board to advise about how to proceed. Under the best conditions, the inventory could be completed in about a year. [Text] [Stockholm SVENSKA DAGBLADET in Swedish 4 Dec 82 p 6] 9843

CSO: 5000/2526

BILL ENVISIONS STIFF PENALTIES FOR POLLUTION

Istanbul CUMHURIYET in Turkish 3 Dec 82 pp 1,11

[Report by Hasan Uysal]

[Text] A draft bill envisioning effective preventive measures against polluting the sea and spoiling the coastline has been submitted to the Office of the Prime Minister. The draft bill says it was prepared with the aim of "modifying Law No 618 of 1927 on ports to meet today's conditions" and in view of the fact that "it has become necessary to make legal arrangements to insure the more intelligent utilization and to prevent the pollution of Turkey's seas, marine products and marine environment." The draft bill envisages stiff monetary penalties against those who pollute the sea.

If the pertinent clauses of Law No 618 are changed, ships of any size found polluting the sea while in Turkish ports or territorial waters will be fined 10 million Turkish liras, those who pollute the air will be fined 1 million Turkish liras and houses, factories and industrial plants which cause sea pollution will be fined 500,000 Turkish liras. Those who report environmental pollution acts, with proof, will be paid as an award 10 percent of the fine that is collected. Furthermore, it will be illegal to build piers, docks, restaurants, warehouses, beach resort facilities and marinas on the coastline without the permission of pertinent port authorities.

The draft bill envisions six changes in Law No 618 on ports.

The proposed changes in Article 4 of the said law envision banning the building of piers, docks, stocks, marinas, maintenance facilities, factories, ship scavenging facilities, casinos, restaurants, warehouses, stores, beach baths, beach resort facilities and other similar structures on the coastline; the sinking of piles in coastal areas placed off limits by the government; landfills in coastal areas; the building of coffeeshops, restaurants and other similar facilities on landfills; and any acts that may affect the breadth of ports.

The proposed changes in Article 5 of the said law envisions fines of between 250,000 and 10 million Turkish liras for ships of any size that dump into the Marmara Sea and Turkish ports and territorial waters bilge, ballast and other types of waste water in amounts exceeding levels to be specified by a code; between 100,000 and 1 million Turkish liras for ships that cause sea pollution

by dumping garbage, sludge and heavy liquids into the water and air pollution by smoke and other similar emissions; and between 20,000 and 500,000 Turkish liras for land facilities, houses, factories and industrial plants which dump into ports and areas protected by the Port Authority rubble, rubbish, sewage, waste water and other materials that may cause sea pollution. According to the draft bill, if the violations are repeated the fines will be doubled.

The change the draft bill proposes in connection with Article 7 of the said law is as follows:

"If a ship sinks or is stranded within the borders of a port or in a passageway such that it impedes or imperils sea traffic, the registered operator of the ship will be responsible for unloading the vessel's cargo and towing the ship or the wreck or for paying the expenses of these procedures. If the operator does not do this, port authorities will have the right to confiscate the ship, the wreck or the cargo and to take the necessary measures to collect the expenses incurred from the operator of the ship. If warranted, the Ministry of Transportation may ban the entry into Turkish ports of ships belonging to offending operators. Any excess funds that may result from confiscations will be paid to the rightful owners. If the confiscated material does not cover the expenses incurred, the difference will be collected from the operator of the ship or the owner of the cargo or their insurers."

The draft bill states that offending ships which are required to pay fines will not be allowed to continue their journey unless they pay their fines or provide adequate guarantees, that unpaid fines will not be changed into prison sentences and that the fines will be collected through fees and freight charges.

The draft bill also adds four new articles to Law No 618 on ports. According to these additions:

"At times when sea traffic is heavy or when fog, storms or shipwrecks imperil traffic, port authorities will have the authority to decide the time, the place and the schedule of entry, transit or exit into, through or out of the ports. If an accident occurs because a ship does not report in proper time to the authorities that it intends to enter, exit or transit through a port or because it does not follow its reported itinerary or because it does not follow the instructions of the port authority, the captain of the ship will be held responsible for the accident. Companies and organizations working or providing services in ports will be required to report to the port authorities sea accidents, fires, acts of pollution and other similar incidents."

Individuals who report acts of environmental pollution to the authorities will be paid up to 10 percent of the fine collected depending on the significance of the report and the degree of usefulness of the evidence provided.

According to another clause in the draft bill, the Ministry of Transportation will decide which port organizations will collect the solid and liquid wastes from ships. The draft bill says that the ships will have to pay for this service whether they use it or not.